ANNUAL REPORT

ON THE

HEALTH OF BLACKPOOL

FOR 1894.

BY

A. JASPER ANDERSON, M.A., M.B. Oxon., D.P.H. Cantab,

Medical Officer of Health.

BRITISH MEDI
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To the Mayor Aldermen and Burgesses of the Borough of Blackpool.

Mr. Mayor and Gentlemen,

I have the honour to present to you my Fourth Annual Report, containing an account of the work done in the Sanitary Department during the year 1894. The anxiety and arduousness of the work becomes greater each year, not only because of the rapid growth of the town, but also because of new sanitary legislation and the increased requirements both of our own public and the outside public with regard to the protection of the Public Health.

The death-rate for the year has been the lowest on record, and though the low death-rate is mainly due to the climatic conditions during the year, yet it also shows that the activity in sanitary matters is producing an appreciable result. I have to thank the officials in my department for the zeal they have displayed during the year, and also the readiness with which they have responded whenever any extra duty has been required. The labours of the Sanitary Committee have been greater than usual, and I have to thank the Chairman and members of that Committee for the willing aid and support which they have given me.

There are many subjects of interest in the Report, apart from statistics, to which I wish to draw your attention.

I am, Mr. Mayor and Gentlemen,

Yours faithfully,

A. JASPER ANDERSON,

Medical Officer of Health.

Public Health Office, Blackpool,
March 20th, 1895.

REPORT.

1.—VITAL STATISTICS.

A.—SUMMARY.

	1894.	1893.
Area of Borough (exclusive of foreshore)	3,495 acres	
Rateable Value (General District Rate)	£211,974	£191,459
Do. (Borough Rate)	£220,175	£200,216
No. of Dwelling-Houses on Rate Book	6,355	5,898
Do. do. do. empty	82	39
Persons per House as per Census	4·84	
Population of Residents estimated at middle of year from No. of inhabited houses	30,337	28,389
Population (Census April 6th, 1891)	—	23,846
Density of Population (persons per acre)	8·68	8·12
Birth-rate per 1,000	23·93	22·47
Death rate (gross)	15·85	18·74
Infant Mortality (per 1,000 births)	159·7	210·3
Zymotic rate (per 1,000 inhabitants)	1·38	2·64
Death-rate (corrected for Visitors)	11·9	14·86
Do. (corrected for age and sex distribution; factor 1·129)	13·45	16·77
Infant Mortality (corrected for Visitors)	132	192·8
Zymotic Rate (corrected for Visitors)	1·02	2·22

B.—POPULATION.

The population has been estimated, as in former years, by by finding the number of inhabited houses in each of the six wards of the town, multiplying each of these numbers respectively by the average number of inhabitants to each house in each ward of the town as given by the last census, and adding the resultants together. There were in August, 1894, 6,273 inhabited houses, and a resident population (excluding visitors staying in the town) of 30,337. All rates in this Report, unless otherwise mentioned, are calculated upon this estimated population. There were 457 more houses on the rate-book in 1894 than in 1893, so that one may say that three new houses are erected every two working days of the year. The population for 1894 would be 28,203, on the assumption that the rate of increase of the town since 1891 was equal to the rate between 1881 and 1891.

The increase of population has been 1,948, made up of 365 (the *natural increase*, excess of births over deaths), and 1,583, the excess of immigrants into, over emigrants from, the Borough.

C.—BIRTHS.

During the year, 719 births occurred in the Borough, but to these must be added as belonging thereto 7 births in Kirkham Workhouse, *i.e.*, 726 births (370 males and 356 females). The birth-rate was 23·93, as compared with 22·47 last year, and 27·4 for the decennium 1881-90. For England and Wales the rate during 1894 was 29·6, and for the 33 great towns 30·7. The births include 39 illegitimate children, viz., 21 boys and 18 girls. The percentage of illegitimate births of total births was 5·37, and per 1,000 inhabitants the rate of illegitimate births was 1·28. This year I have included for the first time the births in Kirkham Workhouse belonging to Blackpool, which are all illegitimate.

D.—DEATHS.

The deaths registered during the year were 481; and of these 120 occurred amongst persons staying temporarily in the town, and belonging to a population not included in my estimate of 30,337 persons. There were hence only 361 deaths amongst residents during the year. Notwithstanding the increase of the Borough the total deaths have been less in 1894 than in any year since 1890, when there were 451 deaths, and the deaths amongst residents less than in any year previous to 1889, when they totalled 358. The births during the year were 726, or a natural increase of population of 365. The gross death-rate was 15·85, and the rate amongst residents was 11·9—the lowest previous rates on record being 15·6 and 13·2 respectively in 1888. If this rate amongst residents be multiplied by 1·129, the factor required because of the age-and-sex-distribution of the population in Blackpool, as explained in the Annual Report for 1892, a corrected death-rate of 13·45 is given comparable with the corrected death-rates published by the Registrar-General.

The death-rate for England and Wales during 1894 was 16·6; and for the 33 great towns 18·1.

The population and the rates of the six wards of the town are given in the following table, the population of each ward being calculated on the number of inhabited houses. The average of the rates for the three years, 1891-93, are given for comparison.

TABLE I.

Ward.	Population.	Birth-rate.		Death-rate.		Zymotic Rate	
		1894.	1891-3	1894	1891-3	1894	1891-3
Claremont	4124	23·28	24·41	9·21	16·21	0·49	2·34
Talbot	7777	32·53	26·72	13·89	17·40	1·16	1·97
Bank Hey ...	2351	13·61	10·51	8·93	14·4	1·71	1·04
Brunswick	5226	23·15	20·68	10·91	15·08	0·57	1·11
Foxhall	7104	21·82	25·64	12·53	15·16	0·98	1·84
Waterloo	3755	18·38	20·09	12·79	16·38	1·59	1·58

The order of birth-rates in 1894 in the wards is Talbot, Claremont, Brunswick, Foxhall, Waterloo, and Bank Hey, and the order for the three years 1891-93 is almost the same, viz., Talbot, Foxhall, Claremont, Brunswick, Waterloo, and Bank Hey.

The order of death-rates in the wards for 1894 is Talbot, Waterloo, Foxhall, Brunswick, Claremont, and Bank Hey; whilst the order for the years 1891-93 is Talbot, Waterloo, Claremont, Foxhall, Brunswick, and Bank Hey.

The order of zymotic rates is Bank Hey, Waterloo, Talbot, Foxhall, Brunswick, and Claremont, in 1894; and Claremont, Talbot, Foxhall, Waterloo, Brunswick, and Bank Hey in 1891-93.

DEATHS IN CERTAIN AGE-GROUPS.

The death-rates per 1,000 *persons living within five definite age-groups* have been calculated, as also the rates for a thousand of each sex living within those limits, and are given in Table C in the Appendix.

Of a thousand children under five years of age 44 died last year, as compared with 56 in 1893, and 46 in 1892. Males died in the proportion of 58 to 32 females in this age-group—a more marked disproportion than in the previous year, when it was 66 males to 46 females.

In the age-group 5 to 25 years the death-rates are almost the same as last year, that of females being as before slightly in excess, probably due to the greater liability of the female to disease at the onset of puberty.

In the two age-groups, 25 to 65 years and 65 to 75 years the rates are much below the average, and especially so for females between 65 and 75 years.

Above 75 years the number living are small, but the rates are not materially different from the previous year.

Deaths of Visitors.

In health resorts it is usual to deduct from the total deaths those occurring amongst persons staying in the town. This is liable to give rates slightly below the truth, because a certain number of deaths occur amongst the residents whilst themselves visiting other places, and their deaths will not be counted in. Those deaths in institutions out of the Borough that I know of are reckoned in my calculation. There is no definition of a visitor fixed upon for use, but each death is carefully inquired into, and I then have to decide whether the deceased did not belong to the population I estimate as resident. If so, the death is classed as that of a visitor. There were 120 such deaths (60 males and 60 females) in 1894, 82 of which occurred in persons over 25 years, and 20 in infants below 1 year. A number of them were sudden deaths, the cause being ascribed to "apoplexy," or cerebral hœmorrhage, in 15 cases, and heart disease in 16. There were 7 deaths from phthisis and 16 from respiratory diseases.

There were 10 deaths from the seven zymotic diseases, in some of which cases the visitor had already been infected before arriving in the town. Three deaths were caused by injuries.

Length of Residence in Blackpool of Persons who Died during the Year 1894.

As in the previous year, I have constructed the adjoining table, shewing the length of time each person who died during the year had lived in the Borough.

TABLE II.

Length of Residence of Persons who died during the year 1894.

Age Group.	Deaths.	Length of Residence in Blackpool.															Born in Blackpool.
		7 days and under.	14 to 7 days.	1 month to 14 days.	3 months to 1 month.	6 months to 3 months	9 months to 6 months.	12 months to 9 months.	2 to 1 year.	3 to 2 years.	4 to 3 years.	5 to 4 years.	15 to 5 years.	25 to 15 years	Over 25 years.	Indefinite.	
Under twelve months	116	2	2	2	4	5	...	...	...	...	...	...	...	...	...	5	96
One year and under 5.........	44	2	...	2	...	1	3	...	...	...	...	...	...	...	...	1	35
5 and under 15	26	2	1	2	...	2	...	1	2	...	1	...	1	...	...	1	13
15 and under 25...............	16	1	2	...	1	...	1	...	1	1	...	1	5	1	...	...	2
25 and under 65...............	196	13	12	11	11	15	9	1	6	13	6	4	38	27	10	5	15
65 and over	83	5	...	4	3	1	2	4	1	2	7	...	15	12	14	4	9
Totals.....................	481	25	17	21	19	24	15	6	10	16	14	5	59	40	24	16	170

INFANT MORTALITY.

The rate of deaths of children under 1 year of age to 1,000 births shows a decided improvement, which is doubtless due to the summer months having been of a lower temperature than usual. In the past there has usually been a high infantile mortality with a dry hot summer.

There were 116 deaths of children under 1 year of age, and 726 births, *i.e.*, a rate of 159 per 1,000 births, as compared with 210·3 in 1893, and 155·9 for 1881-90.

Of the 116 deaths, 20 were of children who were not born in Blackpool, and therefore they ought to be deducted, but this leaves out of calculation those children who were born here and died out of the Borough before reaching twelve months of age. The rate thus corrected is the low figure of 132, as compared with 192·8 in 1893, and 153·4 for the ten years 1883-92. There are two lower rates than this on record, viz., 116 in 1887, and 122 in 1879.

In table F (in the Appendix) the quarterly rates are given, from which it is seen that in the first quarter the rate was only 102, in the third 132, in the second 144, and in the fourth 147. This is a reversal of the usual order, the third and first quarters being usually the worst. The first quarter of the year was warmer and brighter than usual.

For the 33 great towns, the rate of infant mortality in 1894 was 152·0, ranging from 121 in Croydon, to 217 in Preston.

The causes of death are classified in the adjoining table under several headings, and also according to age at death. In connection with this table I have to state that "Congenital Debility," and "Asthenia," have been classified under premature birth, whilst "Marasmus" has been placed under Atrophy.

TABLE III.—Deaths, with Ages and Causes, of Children under 12 months old in 1894.

Causes of Death.	1st day.	2nd day.	3rd. day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd do.	3rd do.	4th do.	1st month.	2nd do.	3rd do.	4th do.	5th do.	6th do.	7th do.	8th do.	9th do.	10th do.	11th do.	12th do.	Totals.
Premature Birth	12	1	1	1				15	2	3	1	21	1	1		1		1						25
Atelectasis			1	1			1	3				3												3
Congenital Malformations	1	1	1					3	1			4			1					1				6
Whooping Cough																		1						1
Measles																				1		1		2
Scarlet Fever																								...
Diarrhœal Diseases															2	1	1	1	1		1	2		9
Enteritis													2					2			1			5
Erysipelas																	1							1
Syphilis													1					1						2
Liver Diseases													1											1
Dentition																								...
Other diseases of Digestive Organs											1	1	1						1					3
Convulsions. and diseases of Nervous System													1			1	1	2					1	6
Tubercular Meningitis														1			2	2		1				6
Tabes Mesenterica															1									1
Other Tubercular Diseases																	1					1	1	3
Atrophy										1		1		4	2		1							8
Diseases of Respiratory Organs													2	2	2	3	2	1	4	1	3	1	1	22
Injury at Birth	1							1				1												1
Navel Hæmorrhage																								...
Suffocation															1									1
Other Violence																								...
All other causes	2							2			1	3	1	1	1		2		1			1		10
All causes	16	2	3	2	...	...	1	24	3	4	3	34	10	9	10	6	11	11	7	4	5	6	3	116

Four of the cases were uncertified, the causes of death being given as "Exhaustion," "Convulsions," "Premature Birth," and "Natural Causes."

On three other cases inquests were held. The verdicts were:—(i) Asphyxia from want of attention at birth—an illegitimate child. (ii) Found dead, and (iii) Misadventure, suffocated through being overlain.

Of the 116 children under 12 months old who died in Blackpool, twenty had either not been born here or in Kirkham Workhouse. Of the 96 children 85 were legitimate, and 11 were illegitimate. During the year there were 687 legitimate, and 39 illegitimate children born. Hence out of every 1,000 legitimate births, there were 123·7 deaths, and 282·0 out of 1,000 illegitimate births. For the four years 1891-94, the legitimate births were 2,444, and the illegitimate births 128. The deaths under 12 months of legitimate children during the same period were 374, and of illegitimate 39. The death-rates were during this period 153·0 and 304·7 per 1,000 legitimate and illegitimate births respectively.

In Table IV. the deaths distributed into wards are given, and in Table V. the infant mortality for each ward has been calculated, and further, to avoid the errors of dealing with small numbers, the mortality from the combined deaths and births during the five years 1890-94 has been calculated for each ward.

TABLE IV.

Number of Children under 1 year old, who died in the respective Wards.

Ward.	1890.	1891.	1892.	1893.	1894.	1890-94.
Claremont...........	16	23	11	18	6	74
Talbot	29	24	24	42	34	153
Bank Hey............	4	2	3	5	2	16
Brunswick............	18	14	17	19	18	86
Foxhall...............	24	33	16	29	25	127
Waterloo	9	7	20	10	11	57
Total............	100	103	91	123	96	513

TABLE V.

INFANT MORTALITY.—Deaths of Children under 1 year old, per 1,000 Births.

Ward.	1891.	1892.	1893.	1894.	1890-94.
Claremont.........	298·7	129·4	209·3	62·5	180·0
Talbot	136·3	119·4	212·1	134·3	150·8
Bank Hey.........	95·2	100·6	263·1	62·5	122·1
Brunswick.........	153·8	158·8	177·5	148·8	165·0
Foxhall	221·4	111·9	177·9	161·3	174·2
Waterloo	134·6	263·1	153·8	159·4	171·6
Total.........	181·9	141·9	192·8	132	162·9

I have continued my investigations into the causes of the rate of infant mortality being higher in Blackpool than would be expected from the healthy situation of the town, and the attention which is given to its sanitary condition. But I shall only be enabled here to indicate the results I have so far arrived at as shortly as possible. Firstly, I have constructed Table VI. of the causes of death, and the ages at death of children dying in Blackpool in the ten years 1884-93. I am thus enabled to compare these results with those of the children dying in Preston, Leicester, and Blackburn (the three towns with the highest infantile mortality) during the years 1889-91; and also with those dying in the three counties of Hertfordshire, Wiltshire, and Dorsetshire in the same years. In the three counties mentioned the infantile mortality is the lowest, and shows what is attainable, though the sanitary conditions under which many of the inhabitants live are far from being perfect. (See Reg. Gen. 54th Ann. Rep.)

TABLE VI.—Causes of Deaths of Infants in Blackpool in Years 1884-93.

Cause of Death.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	Ages by Months.												Total.
												1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th	11th	12th	
Premature Birth	67	21	12	3	1	1	2	107	13	15	4	139	9	6	6	4	2	1	1					168
Atelectasis	8	1			2			11	2	1		14												14
Congenital Malformations	3	2		1	1		1	8		2		10	1	2					1			1		15
Whooping Cough										2	1	3	5	5	1	2	2	5	2	2	3	1	1	32
Measles															1			1	1	3	1	2	3	12
Scarlet Fever																			1					1
Enteritis													1	1	3	1	1	1		2			1	11
Diarrhœa									5	6	4	15	16	19	16	12	11	7	6	3	6	10	4	125
Erysipelas									1			1		1	3	1								6
Syphilis											4	4	1	2	2		1				1			11
Liver Diseases							1	1		2		3		1		1				1		1		7
Dentition																			3	2	1	1	4	11
Other diseases of Digestive Organs				1				1		3	2	6	3	5	6	4	6		4		2	2	1	39
Convulsions and diseases of Nervous System	5	4	4	5	3	1	2	24	12	5	4	45	8	12	5	6	10	7	8	3	5	5	5	119
Tubercular Meningitis															2		1	2	1		1		3	10
Tabes Mesenterica													2	4	5	2	4	1	1	2	1			22
Other Tubercular Diseases													1	1		1	2	1	1	1	1	2	2	13
Atrophy									3	2	5	10	15	14	9	6	4	3	1	3	3	1	2	71
Diseases of Respiratory Organs				1			1	2	2	5	1	10	17	20	17	13	14	17	10	14	12	12	11	167
Injury at Birth	1							1				1												1
Navel Hæmorrhage						1		1	1	1		3												3
Suffocation	1							1				1			1									2
Other Violence																								...
All other causes	3	1	2	1	1			8	2	4	2	16	5	7	3	8	3	2	3	4	3	2	1	57
All causes	88	29	18	12	8	3	7	165	41	48	27	281	84	100	80	61	61	48	44	40	40	40	38	917

There were 5,533 births in Blackpool in the ten years 1884-93, and 917 deaths of infants under 12 months old, *i.e.*, a rate of 165·7 per 1,000 births, as compared with 97 1 in the three counties, and 218 in the three towns.

Of the 917 deaths in Blackpool 524 were males, and 393 females. The births were 2,793 males, and 2,740 females. The deaths under 1 year of males per 1,000 male births were 187·6, and of females per 1,000 female births 143·4.

Age at Death.—During the first day of life 1,590 children would die in Blackpool out of 100,000 births, whilst in the three counties the deaths would be only 1,002 and 1,198 in the three towns. Of 100,000 births in Blackpool, 2,982 would die in the first week, whilst the numbers are 2,163 for the three counties, and 2,646 for the three towns. This shows at once that a larger proportion of children are born in Blackpool who only survive birth for a few days, than in any of the districts used for comparison.

In the first month of age 5,078 deaths would occur out of 100,000 births, as compared with 3,488 in the three counties, and 4,947 in the three towns. Over 1 and under 12 months there would be 11,494 deaths in Blackpool, whilst in the three counties there would only be 6,229, and in the three towns the large number of 16,856 per 100,0co births.

In Table VII. I have constructed a life table for the first year of life, and placed in adjoining colums the similar figures for the three selected towns and counties. From that it will be seen at a glance that the deaths in each month of life diminish rapidly at first after the first month, with the exception of a slight rise in the third month, and then more gradually until the twelfth month.

TABLE VII

Life Table for the First Year of Life.

Age.	Of 100,000 born the numbers surviving at each age.			Deaths in each successive interval of age.		
	Blackpool	Three Rural Counties.	Three selected Towns.	Blackpool	Three Rural Counties.	Three selected Towns.
Days.						
0	100,000	100,000	100.000	1,590	1,002	1,198
1	98,410	98,998	98,802	524	296	485
2	97,886	98,702	98,317	325	281	344
3	97,561	98,421	97,973	217	232	236
4	97,344	98,189	97,737	145	152	144
5	97,199	98,037	97,593	54	120	130
6	97,145	97,917	97,463	127	80	109
7	97,018	97,837	97,354	—	—	—
Weeks.						
0	100,000	100,000	100,000	2.982	2,163	2,646
1	97,018	97,837	97,354	741	473	773
2	96,277	97,364	96,581	867	462	832
3	95,410	96,902	95,749	488	331	646
4	94,922	96,571	95,103	—	—	—
Months.						
0	100,000	100,000	100,000	5,078	3,488	4.947
1	94,922	96,512	95,053	1,518	985	2,130
2	93,404	95,527	92,923	1,807	707	2.049
3	91,597	94,820	90,874	1,446	673	1,967
4	90,151	94,147	88,907	1,102	618	1,749
5	89,049	93,529	87,159	1,102	461	1,584
6	87,947	93,068	85,574	867	483	1,475
7	87,080	92,585	84,099	795	483	1,226
8	86,285	92,102	82,873	724	454	1,317
9	85,561	91,648	81,556	724	476	1,220
10	84,837	91,172	80,336	724	455	1,110
11	84,113	90,717	79.226	687	434	1,029
12	83,426	90,283	78,197	—	—	—

The 917 deaths were distributed as follows:—213 occurred in the first quarter of the year, 172 in the second, 301 in the third, and 231 in the fourth.

Passing to the causes of death, I find that prematurity and atelectasis accounted for 3,289 deaths out of 100,000 births, as compared with numbers 1,436 and 2,428 for the counties and towns respectively. This is a very significant fact, and especially when taken in conjunction with the previous result of the excessive number of deaths in the first week of life. There are several possible explanations of this. (i) That the stamina of the inhabitants of the Borough is not up to the average even of dwellers in the three selected large towns, in consequence of the immigration of partially worn out townsfolk into the Borough; (ii) that the climate of sea-side places conduces to premature births ; (iii) that the social conditions of Blackpool, especially the hurry and bustle of the season, favour premature confinements ; and (iv) perhaps the certification and registration of children, who survive birth a few moments, may be more carefully carried out here than elsewhere. I am unable to state which is the true explanation, although I incline to the belief that the first and the third ones are the chief acting causes. In this connection it is noteworthy that the Registrar General has drawn attention to the gradual increase in the deaths from prematurity and congenital defects which has been going on in England and Wales during recent years.

The deaths from congenital defects were slightly more than in the towns or counties chosen for comparison. Whooping Cough was responsible for 578 deaths per 100,000 births, a number midway between those for the counties and towns. Measles was only responsible for 217 deaths per 100,000, which is slightly higher than 176 the number in counties, and much less than 626 the rate in the three towns. In this there is some evidence that the notification of measles is beneficial.

Including diarrhœa, enteritis, and other diseases of the digestive organs as diarrhœal diseases, I find a rate of 3,163, as compared with the low figure of 792 for the counties, and the high figure of 4,742 for the towns. Erysipelas was more frequently ascribed as a cause of death in Blackpool than elsewhere.

The rate for syphilis was 198, as compared with 190 for the three towns per 100,000 births. Under the present unsatisfactory system of certification and registration of deaths, this cause is more frequently returned under the head of a prominent symptom of the disease.

Deaths from convulsions and diseases of the nervous system are midway between the rates of the towns and counties.

Deaths from tubercular disease were nearly twice as many as in the counties, and about two-thirds the deaths in the towns.

The rate for deaths from atrophy was only 1,283, as compared with 1,738 for the counties, and 2,734 for the towns. The rate for deaths from diseases of the respiratory organs were 3,018, as compared with 2,105 and 3,701 for counties and towns respectively.

An inquiry has been made into the circumstances of children who died under 12 months old since 1891, and the particulars with regard to the feeding of 255 children who survived above a month have been classified in the following table :—

TABLE VIII.

Manner of Feeding.	2nd month.	3rd month.	4th month.	5th month.	6th month.	7th month.	8th month.	9th month.	10th month.	11th month.	12th month.	TOTAL.
Breast alone	11	8	7	9	6	6	6	3	4	3	2	65
Breast with other food	5	9	6	4	4	6	2	4	2	1	2	45
Breast less than one month and then other food		2	1						1			4
Breast less than two months and then other food			1		1				1			3
Breast less than three months and then other food					1	1		1				3
Breast less than six months					1	1		1				3
Milk and water alone	9	19	15	10	10	6	5	3	3	8	4	92
Milk and water and various infant foods	2	3	2	2	7	5	4	3	5	3	4	40
Totals	27	41	32	25	30	25	17	15	16	15	12	255

From this table it will be gathered that 51 per cent. of these children were never fed on the breast at all, whilst 25·5 per cent. only had breast-milk alone during the whole of their lives. Just over 15 per cent. were fed largely on one of the many forms of objectionable infant foods. If the information I was supplied with is correct, there was no evidence of infant insurance being a cause of infant mortality. Space will not allow me to enter more fully into other results of this inquiry.

To sum up, the high infantile mortality in Blackpool appears to be caused by:—

(i) The excessive number of deaths of prematurely born infants.

(ii) The large number of deaths from diarrhœal diseases, caused by injudicious methods of feeding, to some extent by parental neglect, and also in the summer months to overcrowding of the dwellings. And

(iii) By the large proportion of deaths from respiratory diseases, possibly induced by the children being improperly clothed.

As means which might be adopted to lower this death-rate I should suggest:—

(i) That mothers be educated in the proper manner of feeding, clothing, and rearing children, by the circulation of handbills and other means.

(ii) That the cleanliness of dwellings be strongly insisted upon. And

(iii) That a *crêche* or day nursery be established, to which lodging-house keepers could take their infants during the busy months of the year.

MORTALITY FROM ZYMOTIC DISEASES.

The seven principal zymotic diseases, viz.:—Smallpox, scarlet fever, diphtheria, 'fever,' measles, whooping cough, and diarrhœa caused 42 deaths, as compared with 75 in 1893, and 24 in 1892. Of these eleven were visitors. The zymotic rate per 1,000 inhabitants was 1·38 and 1·02, deducting the eleven visitors.

In the 33 English towns the rate for 1894 was 2·4.

There were two deaths from small-pox, four from scarlet fever, 6 from diphtheria, 8 from typhoid fever, 6 from measles, 3 from whooping cough, and 13 from diarrhœa.

The zymotic rate from the five chief zymotics, deducting those from diarrhœa and whooping cough, was 0·85, as compared with 0·88 for 1893, and 1·51 for the 33 English towns. The diarrhœal rate was 0·42, and for the 33 great towns 0·51.

MORTALITY FROM OTHER DISEASES.

Phthisis caused 33 deaths, including seven visitors. The death-rate amongst residents from phthisis was 0·85, as compared with 0·73 in 1893, and 1·15 in 1892. Diseases of the respiratory organs caused 67 deaths, including 16 visitors. In 1893 there were 118 deaths. The death-rate per 1,000 residents was 1·68, as compared with 3·63 in 1893. The deaths from lung diseases other than phthisis constituted 13·9 per cent. of the total mortality as compared with 22·1 per cent. last year. The deaths from these causes were exceptionally few during the past year.

Influenza.—Only two deaths were ascribed to this disease during the year, and that was during the first quarter, being the remains of the epidemic in the fourth quarter of 1893.

Alcohol was certified as responsible for 7 deaths, and it is significant that four of these were females and only three males. Two of these deaths were amongst visitors. There were 9 deaths referred to disease of the liver, and from the attendant circumstances it is likely that alcohol was the primary cause of death. Of these 5 were male and 4 female. There were therefore 0·234 per 1,000 persons certified as dying from alcoholism in Blackpool, as compared with 0·176 in 1893.

For England and Wales during the years 1886-90, the rate was 0·055. That is about four times as many in Blackpool as in England and Wales.

Cancer was the cause of 26 deaths (4 of which were visitors), as against 17 in 1893, 19 in 1892, 16 in 1891, and 18 in 1890. There were 9 males and 17 females. There were 5 deaths from diseases of the genital tract, 4 each from the intestinal tract, the breast, and the stomach, 3 from the liver, 2 from disease of the glands of the neck, and 1 each from disease in the ovary, œsophagus, spleen, and lower jaw. The cancer death-rate was 0·86, as against 0·59 last year.

Meningitis was certified to be the cause of death in 23 instances, 12 of which were said to be tubercular, and the other eleven were certified either as meningitis or cerebro-spinal meningitis. Four cases occurred amongst visitors. There were 13 males and 10 females. Nine of the cases were below twelve months old, 6 between one and five years, 5 between five and fifteen years, 2 between thirty-five and forty-five years, and 1 was fifty-two years of age.

Hence in Blackpool 0·758 deaths per 1,000 inhabitants were ascribed to tubercular meningitis and inflammation of the brain and its membranes, whilst in England and Wales for 1893 the rate was only 0·499. The reason for this difference is difficult to give, unless the difficulties of diagnosing enteric fever in children has caused errors of diagnosis to be made, for during September, October, November, and December, when enteric fever was prevalent in the town, there were 10 such deaths. In one of these cases a death from enteric fever occurred in the same house some months afterwards.

The deaths from *injuries* were 11, of whom 3 were visitors, as against 7 in 1893, 8 for 1892, and 15 for 1891.

The deaths after *confinement* were 7, as compared with 5 last year, and 11 in 1892.

The causes were certified as—(i) Parturition 3 weeks, phlebitis in legs, pulmonic thrombosis; (ii) childbirth, 10 days, septicæmia, 8 days; (iii) collapse and shock caused by parturition; (iv) heart disease, miscarriage 4 days exhaustion; (v) childbirth, 17 days, pelvic abscess, embolism of heart; (vi) post-partum hæmorrhage 4 days, exhaustion; (vii) childbirth, pelvic cellulitis, 2 days.

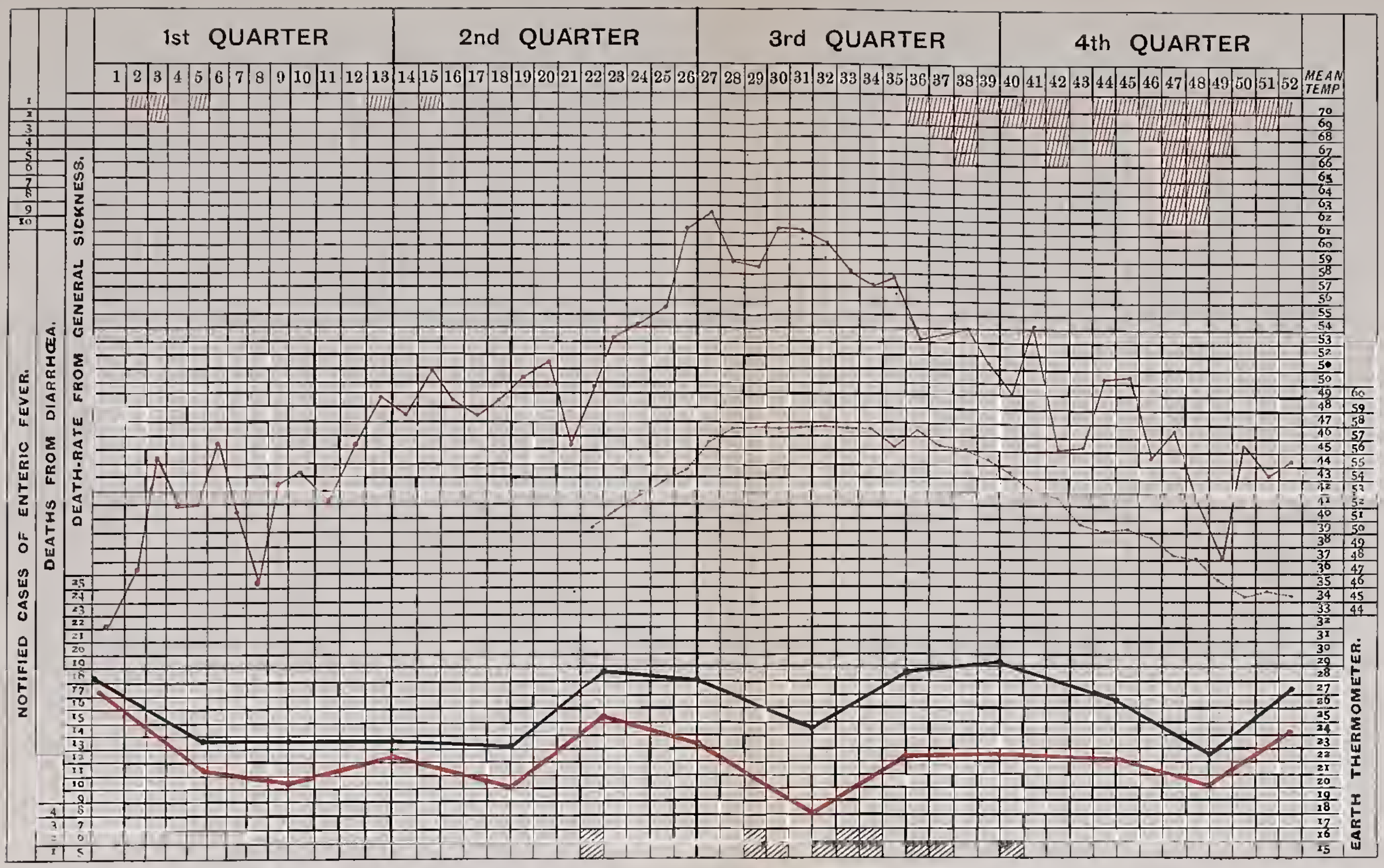
The rate of deaths per 1,000 births were 9·6, as compared with 7·8 in 1893, and 15·6 in 1892. The corresponding rates for England and Wales were 6·51 in 1893, 4·05 in 1892, and 4·89 in 1891. There is here evident a tendency to increase in the death-rate from the accidents of childbirth.

The *inquests* held during the year were 18, with the following verdicts:—

Injuries from being run over	4
Injuries from falling	4
Drowning	2
Scalds and Burns	2
Suicide	1
Natural Causes	1
Found Dead	1
Failure of the heart's action	1
Overlain in Bed	1
Asphyxia, from want of attention at birth	1
	18

There were 18 deaths, the causes of which were uncertified either by the Coroner or a Medical Man. Therefore 3·7 per cent. of the total deaths were uncertified.

CHART I.



DEATH-RATE (Monthly) FROM ALL DISEASES ———

Do. do. OF RESIDENTS ONLY ———

TOTAL DEATHS (Weekly) FROM DIARRHŒA ▨

NOTIFIED CASES (Weekly) OF ENTERIC FEVER ▨

MEAN TEMPERATURE (Weekly) at 9-0 a.m. ———

MEAN TEMPERATURE OF SOIL (Weekly) at Depth of Four Feet - - - - - - - - - -

CHART II.

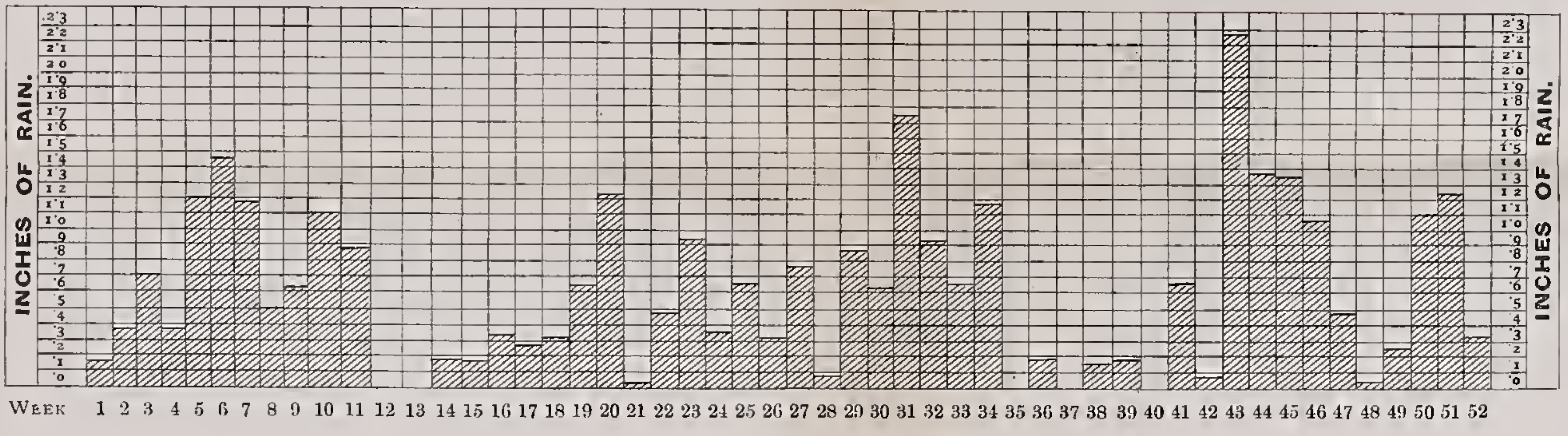


CHART III.

DEATH RATES.

From (1) GENERAL DISEASES ———

„ (2) „ „ ———

DEATHS OF VISITORS DEDUCTED.

„ (3) SEVEN ZYMOTIC DISEASES. ———

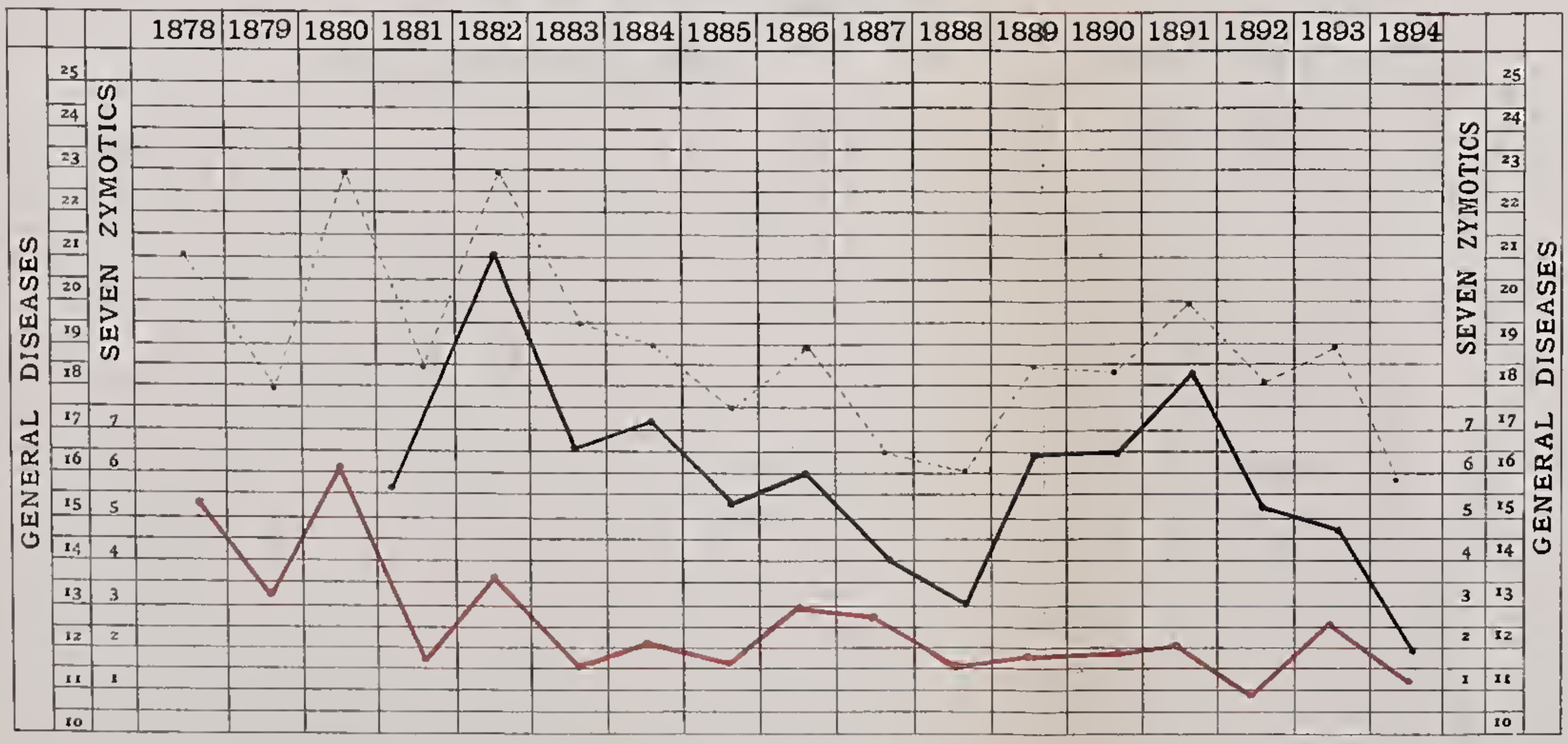


Chart I. gives graphically the monthly death-rates, the black line giving the gross death-rates, the lower red line the corrected death-rates, the upper red line the mean weekly temperature. The lower shaded spaces denote the weekly deaths from diarrhœa, and the upper spaces shaded red the cases of enteric fever notified each week. It is noteworthy how the deaths from diarrhœa occur whilst the earth thermometer reads above 56° F. The largest number of cases of enteric fever notified in one week occurred during the 47th and 48th weeks of the year. For the first time I am able to give the temperature of the soil at a depth of four feet for a portion of the year. The mean weekly temperature of this earth thermometer is denoted by the dotted red line.

Chart II. gives the rainfall for each week of the year.

Chart III. gives the several death-rates for the last seventeen years.

Tables A, B, C, D, E, F, G, K, and L, in the Appendix, give further details of the vital and mortal statistics as compared with previous years.

The accompanying table gives a revision of the deaths from 15 causes during the last twelve years.

TABLE IX.

	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894
	16,000	17,212	18,031	19,550	20,380	20,540	21,661	24,312	23,846 Census.	26,740	28,389	30,337
Smallpox	1	...	...	...	...	...	...	...	...	...	1	2
Measles	1	2	2	10	...	5	2	8	10	...	4	6
Scarlet Fever	6	4	2	5	12	4	1	5	4	4	11	4
Diphtheria	3	2	2	5	5	13	12	6	1	1	4	6
Whooping Cough ...	2	1	11	3	14	...	8	2	7	5	9	3
Croup(not spasmodic	6	4	2	8	4	4	6	8	4	1	4	3
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever.........	5	5	3	6	4	7	8	3	4	4	5	8
Diarrhœa...............	9	22	11	25	18	5	11	23	24	10	41	13
Rheumatic Fever ...	1	3	5	5	2	1	...	2	4	1	2	3
Erysipelas	2	1	...	2	1	2	2	...	1	...	4	3
Phthisis	26	26	17	27	25	23	30	27	32	33	28	33
Bronchitis,Pneumonia and Pleurisy	52	41	55	65	61	62	64	95	137	102	118	67
Heart Disease.........	25	26	20	23	23	30	39	37	41	40	43	45
Injuries..................	6	12	5	11	6	7	15	8	15	8	7	11
Other diseases	173	184	172	175	151	159	204	227	217	279	251	274

II.—ACTION TAKEN TO PREVENT THE SPREAD OF DISEASE

A.—Notification of Infectious Disease.

This means of combating certain infectious disorders has proved very useful during the year, and has worked fairly smoothly. Section 87 of the Blackpool Improvement Act, 1893, has enabled the sanitary officials to insist upon the isolation of patients suffering from infectious diseases whenever the removal to the infectious diseases hospital has been refused.

The notification of 'puerperal fever' still remains a dead letter. One death was registered from puerperal septicemia, and and was notified me by the Registrar. To medical men the term 'puerperal fever' is vague and unscientific, and hence some legal definition is required of the diseases intended to be covered by it. Failing this, it is easy to avoid notifying such cases—cases which ought to be inquired into and the ascertained causes removed by an independent official.

The following cases of infectious disease were notified during the year, and are arranged in a tabular form to shew the number of cases each month.

TABLE X.

Disease.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals.
Smallpox	...	...	7	...	...	8	3	2	...	...	...	...	20
Measles............	...	1	1	...	15	87	175	25	5	...	3	8	320
Scarlet Fever ...	4†	5	3	6	6	8	8	11	14‡	6	3	2	76
Diphtheria	2	2	1	...	1	...	3	...	1	...	...	1	11
Enteric Fever...	4	...	1	1	...	...	...	...	12	10	...	9	60
Puerperal Fever	...	1	...	...	...	...	...	...	...	...	23	...	1
Rötheln............	...	...	...	...	...	6	2	...	...	...	...	...	8
Membranous Croup...........	2	...	...	...	...	...	...	...	...	...	...	...	2
Totals.........	12	9	13	7	22	109	191	38	32	16	29	20	498

† One of these cases notified as diphtheria. ‡Two of these cases proved not to be scarlet fever.

The number of imported cases, *i.e.*, cases in which the infection occurred outside the Borough, or in which the patient was ill on arrival, and cases directly traced to such are given in the subjoined Table :—

TABLE XI.

DISEASE.	January.	February.	March.	May.	June.	July.	August.	September	November.	December.	Total.
Smallpox	...	...	7	...	8	3	...	...	...	...	18
Measles..........................	...	1	1	8	2	6	4	...	3	...	25
Scarlet Fever	...	...	3	...	5	2	4	4	...	1	19
Diphtheria	...	...	...	1	...	3	...	...	...	...	4
Enteric Fever..............	1	...	...	...	...	...	...	...	1	...	2
Total........................	1	1	11	9	15	14	8	4	4	1	68

The number of houses infected with the different diseases is given in the following Table :—

TABLE XII.
Number of Houses Infected.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November.	December.	Totals.
Smallpox	...	...	3	...	...	2	2	1	...	...	...	...	8
Measles	...	1	1	...	12	72	117	19	4	...	2	7	235
Scarlet Fever ...	4	5	2	5	4	7	7	10	14†	5	2	2	67
Diphtheria	2	2	1	...	1	...	1	...	1	...	...	1	9
Enteric Fever...	4	...	1	1	...	...	...	...	12	9	23	8	58
Puerperal Fever	...	1	...	...	...	...	...	...	...	...	...	...	1
Rötheln	...	...	...	...	...	2	2	...	...	...	...	...	4
Membranous Croup.........	1	...	...	...	...	...	...	...	...	...	...	...	1
Totals.........	11	9	8	6	17	83	129	30	31	14	27	18	383

† Including two houses where the cases did not prove to be scarlet fever.

The accompanying Table gives the number of infectious cases notified as compared with the previous year, the deaths from these diseases, the percentage case mortality, and the death-rate from each disease per 1,000 inhabitants in comparison with the similar rates for the 33 great towns during 1894.

TABLE XIII.

DISEASE.	Cases Notified.		Cases notified per 1,000 inhabitants.	Deaths in 1894	D.R. per 100 cases.	D.R. per 1,000 inhabitants.	D.R. per 1,000 inhab. for 33 great towns.
	1893	1894					
Smallpox	6	20	0·659	2	10	0·066	0·043
Measles	122	320	10·54	6	1·87	0·197	0·63
Scarlet Fever ...	130	76	2·504	4	5·33	0·132	0·21
Diphtheria.........	12	11	0·362	6	5·45	0·197	0·38
Enteric Fever ...	42	60	1·977	8	13·33	0·263	0·19
Puerperal Fever	4	1	0·033	1	100	...	...
Whooping Cough	...	...	...	3	...	0·099	0·48
Diarrhœa	...	...	...	13	...	0·428	0·51

The cost of notification in fees to medical men has been as follows :—

	£	s.	d.
Measles	23	17	6
Scarlet Fever	7	15	0
Diphtheria	1	5	0
Enteric Fever............................	7	5	0
Variola.....................................	1	7	6
Puerperal Fever........................	0	0	0
Rötheln	0	5	0
	£41	15	0

SMALLPOX.

This disease gave the Sanitary Officials a great deal of work and anxiety during the year. By the promptitude and thoroughness of the measures taken it never broke through the first line of defence. A great debt is due to the ability and willingness of all members of my staff, when called upon to perform the additional duties imposed upon them. This work having to be done in secret is none the less real, but through not being paraded before men is not likely to be appreciated at its true worth. During the time of stress the services of the Sanitary Department were known to few besides the members of the Sanitary Committee.

The history of the outbreaks illustrates the great infectivity of the disease, its spread by means of mild and unrecognised cases, the influence of tramps on its diffusion, and the great value of vaccination and re-vaccination as a preventative. Without the latter means I am fully convinced that no system of isolation would have prevented an enormous epidemic arising from the cases with which we had to deal.

On March 6th, a man, aged 31 years, was found to be affected with smallpox whilst in the waiting-room of the Foxton Dispensary. He was removed to the Old Sanatorium, the Foxton Dispensary was disinfected, and the other patients who had been in the room with him were likewise removed, vaccinated, their clothes disinfected, and their addresses registered so that they might be kept under observation. It subsequently transpired that this man had been sleeping out in various parts of the Borough until March 3rd, since which time he had stayed at Ward's Common Lodging House.

On the same day the keeper (Lee) of the only other common lodging-house in the town took one of his inmates to the Medical Officer of the Union, who certified that this person was suffering from small-pox. He was then walked through the streets a distance of 2½ miles to the old Sanatorium, where he was taken in. This patient had been at Lee's since February 2nd, but there was a suspicion, though no clear evidence that he slept at Ward's on February 18th.

These two lodging-houses were at once closed, the inmates kept inside, vaccination offered them, and the premises disinfected. After they had got to bed at night, the houses were visited, and the clothes of the inmates taken away to be disinfected in the night, and brought back early next morning. At Ward's 17 consented to re-vaccination, 10 had had small-pox, and the remainder, about 78, refused. At Lee's 23 consented to be vaccinated, 3 had had small-pox, and the remainder, about 25, refused. Five other persons who had been in contact with the patients were re-vaccinated.

I believe the origin of these two cases to be a common one, and to be due to an infected tramp visiting either one or both of these houses.

Next day March 7th, a third case was notified at South Shore. This man had visited Bradford, where small-pox was rife, on Saturday, February 17th, and the patient first shewed symptoms on Saturday, March 3rd. There was a suspicion that this patient had visited a nurse at a small-pox hospital, but this he stoutly denied. The other 8 inmates of the house were re-vaccinated.

For a fortnight the lodging-house keepers did not take in any fresh lodgers, the houses were visited at least once a day, and Section 83 of the Public Health Act, 1875, was enforced with regard to the provision of reports of the persons who resorted to the house each night.

All went well until March 18th, when an inmate at Lee's who had slept with patient No. 2, was found to be feverish. He was isolated in an isolation ward, the premises disinfected, and on the 21st, when there was no doubt that he was suffering from small-pox, he was placed with the other three patients. This patient refused to be vaccinated when the first case arose.

At that period I was making an inspection of the inmates of these houses each night after they had retired to bed. On March 20th I found three others suffering from feverishness, these were promptly isolated and the premises again disinfected. On March 21st these cases proved to be undoubtedly small-pox, and they were removed to the other patients in the old Sanatorium. None of these cases had been re-vaccinated, and no doubt they had been infected from case No. 1, one of whom had slept in the adjoining bed in the same room. After this I made arrangements with the lodging-house keepers not to take in any more inmates for a few days, and quarantined all who refused to be re-vaccinated. All then consented to be re-vaccinated, except two, one of whom escaped and the other remained obdurate. After a time the houses were allowed to open to those who chose to be re-vaccinated before admission. This epidemic then ceased, and it speaks well for the measures adopted that there was never the slightest suspicion of any cases arising either in this town or elsewhere from this serious outbreak in two large common lodging-houses, and amongst a most unruly section of the community. From March 20th to April 18th I vaccinated 209 inmates of these houses, in the succeeding month 130 inmates, and the month after that 48 inmates, or a total of 427 altogether in these houses, including those previously vaccinated.

On June 8th the eighth case was notified. A child 20 days old was found to be affected with confluent and hæmorrhagic small-pox, and a history of not having been well since June 2nd, when it was discharged from Kirkham Workhouse at the mother's request, the child being vaccinated on that day previous to leaving. I carefully examined the mother of the child, who had been confined in the workhouse, and found still some "seeds" of small-pox on the hands and feet, so that she was suffering from small-pox of 3 or 4 weeks duration without it having been recognised. The two were removed at once, the inmates of the house placed in quarantine, and the premises and clothing thoroughly disinfected. The inmates of the house consisted of the householder, his wife and two young children, two male lodgers, and four female lodgers. One of the latter had left for Blackburn when I arrived, but she was promptly found, disinfected, and kept under surveillance. All these people were re-vaccinated, and frequently visited during the next fortnight. The first stock of lymph I used here did not act well; I vaccinated the man, his wife, one of the female lodgers, one male lodger, and the two children with it. It only took slightly in the case of the female lodger and the housewife. With the other two female lodgers and male lodger the second stock of lymph took well. One male lodger became feverish on June 17th, and the man, his wife, and a female lodger on June 19th. The cases were isolated as they occurred, and finally the house was again disinfected. This proved the end of this outbreak.

On June 15th, a lady visitor from Manchester was notified as suffering from small-pox. She had been too long in Blackpool to have been infected before she arrived, but her husband was travelling almost daily to Manchester, and at that time the disease was very rife in that city. There were 10 other inmates in this house, including a child 10 months old, unvaccinated. All these were vaccinated, and no further case occurred.

A water-cress gatherer, who had been sleeping out in the fields in and around Blackpool from June 11th, walked into the old Sanatorium on June 26th, when she was found to be suffering from a severe attack of confluent small-pox. The illness had commenced on June 21st. I obtained indisputable evidence that she had been infected in a Common Lodging House in Preston. No cases developed from this one.

On July 29th and 30th, three donkey-drivers were found to have the disease. It was found that one of them had been staying at a Common Lodging House in Preston until the day before the removal of a case of small-pox therefrom. He came a few days afterwards to Blackpool, developed the disease in a mild form, and walked about without its nature being discovered until two other cases had resulted therefrom. These two cases were not discovered until two days later than they should have been, for one of them was prescribed for by a chemist when the rash was fully out. The chemist could not be expected to diagnose the disease, and did not do so. There were 11 inmates in the two houses inhabited by these patients, all of whom were re-vaccinated. No further cases occurred.

We were informed that small-pox was diagnosed shortly after her return to Manchester in a lady visitor, who had been ill a few days here. The house was disinfected, and the 7 inmates re-vaccinated.

The last outbreak occurred on August 19th. I then discovered this patient had slept with a friend, who had been taken ill on July 26th, and was sent home to Macclesfield on July 31st, when he had an eruption on his face. I secured this young man on his return to Blackpool on August 23rd, and found that he still had the dried pustules of the disease on his feet. This case had been completely overlooked both here and at Macclesfield. I could not trace the infection in this case. No more cases occurred during the year.

The lessons to be learnt from these instructive outbreaks are :—

(i) The diffusion of the disease by means of tramps who frequent common lodging-houses.

(ii) The occurence of slight and unrecognised cases of the disorder.

(iii) The influence of speedy removal of the case when it has been recognised before the fourth day of the disease.

(iv) The beneficial effects of re-vaccination if the person has not been exposed too long to the infection. All who took the disease from previous cases refused vaccination, except in the outbreak on June 8th, and here there was a suspicion that the lymph used was weak, whilst the case was a very severe one and was not promptly recognised. Those who did become infected had been specially exposed to the poison, but did not take the disease in a severe form, so that possibly the re-vaccination had some value in diminishing the intensity of the disease. The two young children in this house, who had been well vaccinated in infancy and were freely exposed to the disease, remained well.

(v) The two fatal cases occurred in persons in whom there was no satisfactory evidence of vaccination.

I append some particulars of these cases.

CASES OF SMALLPOX.

No. of case.	Age.	Sex.	Date of attack.	Vaccination History.	Variety of Attack.	Result.	Remarks.
1	31	Male	March 2nd.	No marks, said to have been vaccinated	Discrete, mild	Cured	From Ward's.
2	26	do.	do. 2nd.	2 good well-foveated marks, ¾-in dia.	Do.	Do.	From Lee's.
3	25	do.	do. 3rd.	1 oval scar, 1-in by ½-in, not foveated	Discrete, severe	Do.	Infected in Bradford.
4	32	do.	do. 20th	2 slight scars, ¾-in diam. not foveated	Discrete, mild	Do.	From No. 1.
5	16	do.	do. 18th	2 well foveated scars	Do.	Do.	Slept wth No. 2.
6	46	do.	do. 19th	No marks, said to have been vaccinated	Confluent	Died	Slept in next bed to No. 1.
7	43	do.	do. 20th	Slight scar, size of shilling, not foveated	Semi-Confluent, severe	Cured	From No. 1.
8	20 days	Female	June 2nd	Vacccinated day of onset	Hæmorrhagic	Died	Case from Kirkham.
9	22	do.	May 20th	Said to have been re-vaccinated a month ago	Mild	Cured	Mother of No. 8.
10	21	Male	June 17th	3 circ. scars size of a shilling	Do.	Do.	Lodger where No. 8 stayed.
11	29	do.	do. 19th	2 circ. scars, one well foveated	Do.	Do.	Householder do.
12	30	Female	do.	2 faint scars, about 1-in by ¼-in	Do.	Do.	Housewife do.
13	30	do.	do.	1 faint scar, size of 6d.	Severe	Do.	Lodger do.
14	40	do.	June 16th	1 faint scar, size of shilling	Mod., severe	Do.	Visitor from Manchester.
15	36	do.	do. 21st	1 faint scar size of 3d. bit	Confluent	Do.	Watercress gatherer.
16	19	Male	July 21st	3 well foveated scars	Discrete	Do.	Infected by No. 17.
17	21	do.	do 12th	1 foveated scar, size of 6d.	Do.	Do.	Infected at Preston.
18	19	do.	do. 25th	3 foveated scars, size of 6d	Do.	Do.	Infected by No. 17.
19	21	do.	Aug. 16th	Unvaccinated	Discrete, severe	Do.	Slept with No. 20.
20	22	do.	July 26th	Very slight scar, size of 6d.	Do.	Do.	

MEASLES.

This disease became epidemic during June and July. The usual difficulty was met with viz. :—A medical attendant was not in many cases called in, and through the manner in which dual notification is carried out the parents think that they are not compelled to notify the disease. Further, it is regarded as a necessary complaint for children to suffer from, and not to be a disease fraught with danger. The disease in this instance appears to have been of a specially mild type, but nevertheless 6 deaths occurred, which could have been prevented with a better educated public opinion on such matters. It appeared to be spread by affected children playing with others, and in this manner the infection was carried to the schools in the central parts of the town. However, house-to-house visitation was made in the districts where the disease was expected to be, and all suspicious cases were kept from school, and also all children from infected houses. As far as possible isolation was insisted upon, and in some cases the children were removed to hospital. At the time there would appear to have been some cases of rötheln, for 6 were notified, and in one instance there was a fatal result from suppuration of the cervical glands.

SCARLET FEVER.

There was a lessened prevalence of the disease, and the cases which occurred were of a mild type. More cases occurred in August and September than any other month.

In August, out of 7 cases of the disease notified, six obtained their milk from one source. Another case was notified which also obtained its milk from the same farm, but ultimately this case proved not to be scarlet fever. There were cases of "sorethroat" amongst other consumers of this milk. Suspicion then attaching to this farm, very careful inquiry was made into the sanitary condition of the farm, the health of the inmates, and their previous state of health.

The sanitary condition and cleanliness was above the average. The inmates and workers on the farm were and had been healthy. The milk was taken direct from the cowsheds to the consumer. The cows, 22 in number, were carefully inspected, and I took Mr. Thorburn, veterinary surgeon, to help me in this. All were found healthy, except one animal, which had calved about a month previously. The anterior and posterior teats on the right side presented an ulcer on each. One was elliptical in shape, about ½in. long, and the other nearly circular and not so large. The ulceration was only superficial. Between the right and left quarters of the udder, and towards the centre, there were several nodules about the size of a split pea. There was slight erythema over the posterior part of the gland with some desquamation. The cow's temperature was normal. When seen, this cow was in a cowshed with another one, which was not delivering milk. The other 20 were in a large double "shippon." The supply of milk from this cow was stopped, and the cow was kept isolated for a fortnight. I was assured that this milk had not been distributed to the customers until some days after the illness occurred in the houses. However, no more cases occurred.

Several cases of the disease occurred through cases being isolated at home in the same street or neighbouring streets. It is practically impossible to isolate a case of this disease in a satisfactory manner unless the house is large and has two upper storeys.

There were several "return" cases after the patients had been sent home from the hospital. These occurred generally from 3 to 4 weeks after the convalescent had returned home. Rigid care is taken with regard to the discharge of patients, and partial "isolation" at home is advised for a fortnight after discharge. It would appear as if in some cases the patient remained infectious longer than usual, and even after desquamation is completed.

Cases were noticed to occur and recur in certain houses where glaring insanitary conditions existed.

One case was compulsorily removed to the hospital under a magistrate's order.

A boarding school became infected through one of the boarders having a mild and unrecognised attack of the disease, and subsequently infecting another scholar. The school was closed, the cases removed, and the premises disinfected. No other cases occurred.

DIPHTHERIA.

The same number of cases of this disease were notified in 1894 as in 1893; but because of the great mortality of the disease, I believe that some of the milder cases escaped recognition; whilst others were called "membranous" or "inflammatory croup." The first case occurred in a shop assistant, and there had been previous slight sore throats in the same shop. The next case died on Feb. 15th, and a few doors off a child was certified to have died on Feb. 8th, from "inflammatory croup." The three next cases were sisters and were visitors, two of whom died. It was clear that the infection was contracted at home, and I subsequently learned that the sanitary condition of their villa residence was disgraceful.

ENTERIC FEVER.

Four cases were notified in January, which were the remains of the slight amount of the disease prevalent in the Autumn of 1893. A case occurred in each of the months March and April, after which the town was free from the disease until September. There was then a slight epidemic consisting of 54 cases, as well as a fatal case which had been removed to Kirkham Workhouse before its nature was recognised. One could not discover that either the milk supply or water supply was at fault.

Two cases occurred in succession in a house, where it was found that a branch sewer was leaky, and that sewer gas could pass into the lower rooms; whilst into the main sewer, hot waste water from a boiler was being passed (A third case occurred in this house in the beginning of 1895). One man contracted the disease through nursing his child when afflicted with the disease out of the district, and also one of the nurses at the Sanatorium took the disease.

There were several instances in young children of two playmates being stricken down with the disease at the same time.

One of the fatal cases walked into the Borough a few days before death.

The age-and-sex-distribution of these cases was :—

	Males	Females	Totals
Under five years	1	1	2
From five to ten years	5	3	8
„ fifteen to ten years	8	7	15
„ twenty to fifteen years	8	7	15
Over twenty-five years	12	8	20
Totals	34	26	60

The method of collecting the excreta of typhoid cases, whether at home or in the hospital in air-tight receptacles charged with disinfectants, has been continued. The contents are subsequently burnt in the destructor.

Tables B and H in the appendix give further details of the cases of infectious disease notified to me.

PHTHISIS OR CONSUMPTION.

The deaths ascribed to this cause were 33. The offer to receive voluntary notification of cases of this disease has not been responded to. In six cases the house and furniture was thoroughly disinfected, but in other cases the occupants considered that they had taken all the precautions necessary. The circulars which are sent out, cause more energetic measures to be taken than would otherwise be adopted.

B.—Isolation.

The Infectious Diseases Hospital has worked well during the past year, and the prejudice against removal thereto is gradually dying away. I have to thank Miss Cain, the matron, and the nursing staff, for the care and attention which they have bestowed upon the patients committed to their charge. Unfortunately one of the nurses in the enteric wards became afflicted with that disease. Table XIV. gives particulars of the patients admitted.

TABLE XIV.

Patients admitted to the Sanatorium during year 1894.

No. of cases Notified	Diseases.	Total admtd.	MALES.		FEMALES.		Dischar ged.	Died.	Remaining in Hospital, Dec. 31st,	
			Under 12 years	12 and over.	Under 12 years	12 and over.			1893	1894
320	Measles.........	45	22	...	21	2	45	...	...	...
75	Scarlet Fever	58	19	8	22	9	59	3	7	3
60	Enteric Fever	37	7	12	3	15	24	5	3	11
11	Diphtheria ...	4	...	...	4	...	2	2	...	...
...	Phthisis........	1	...	1	...	...	1	...	...	...
466	Totals......	145	48	21	50	26	131	10	10	14

In the old Sanatorium 20 cases of small-pox were admitted, 14 being adult males, 5 adult females, and a female child 3 weeks old. The latter and one of the male patients died, the remaining 18 being discharged cured.

For the financial year, ending March 25th, 1895, the cost of the Hospitals were:—

INFECTIOUS DISEASES HOSPITAL.

	£	£
Wages of Matron and Porter	86	
Hired Nurses	143	
Provisions for Inmates, &c.	391	
Domestic Servant and Laundress	50	
Gas, Coal, Water, Rates and Taxes	107	
Alterations and Repairs—including Painting	289	
Gardening	51	
Medicine and Medical Apparatus	39	
Advertising, Printing, &c.	13	
Materials for Nurses' Uniforms, Cleaning Materials and Sundry Expenses	56	
		1,225
Less Receipts from Inmates	80	80
		1,145
Interest and Sinking Fund		270
		£1,415

OLD SANATORIUM.

Wages of Caretakers, &c.	£11	
Hired Nurses	6	
Repairs, &c.	5	
Erecting Telephone Line	26	
Rent of Site	6	
Gas, Coal, Rates and Taxes	13	
Sundry Expenses	7	
		74
		£1,489

During this period the average stay in the Hospital of the 161 patients was 32·1 days, or 5,174 days. The old Sanatorium had 19 cases, and the stay was 451 days. When in use the nurses and provisions were supplied from the Hospital.

The cost per week per patient was £1 19s. 0·6d., including the cost of the two hospitals. Deducting the amount received from patients, the actual cost to the ratepayers of each patient was £1 17s. 0·7d. per week. In this cost is included the cost of disinfecting articles sent to the disinfecting station to be disinfected.

Since the hospital was opened in July, 1891, the following cases have been treated in the hospital and at home with the results mentioned in Table XV. :—

TABLE XV.

Disease.	Cases treated in hospital	Deaths.	Per cent. of mortality.	Cases treated at home.	Deaths.	Per cent. of mortality.
From July, 1891, to Dec. 31st, 1894.						
Measles..................	119	*Nil*	*Nil*	574	19	3·31
Scarlet Fever	208	12	5·77	113	11	9·73
Enteric Fever	82	9	10·97	73	11	15·07
Diphtheria	18	6	33·33	17	6	35·3
Other Diseases	2	*Nil*	*Nil*	...	...	...
Totals	429	27	6·29	777	47	6·05

III.—GENERAL SANITARY CONDITION OF THE DISTRICT.

A—INSPECTOR OF NUISANCES REPORT.

To the Chairman and Members of the Sanitary Committee.

Gentlemen,—I have the honour and pleasure of presenting to you my fourteenth annual report of the work carried out under the superintendence of the Medical Officer of Health by my branch of the Sanitary Department during the year 1894.

I give hereunder the figures for the past year's work, together with similar figures relating to 1893, for the purpose of comparison :—

		1893.	1894.
Complaints received		149	131
Houses and other premises inspected		2812	2874
Houses where sanitary defects were found		1520	1589
Houses and other premises re-inspected		2523	2470
Notices served for the abatement of Nuisances	Council	486	434
	Preliminary	1063	1703
	Verbal	120	164
	Letters	373	336
		2042	2637
House drains tested for first time		1376	1699
New houses	Satisfactory	270	423
	Unsatisfactory	163	198
Other houses	Satisfactory	43	87
	Unsatisfactory	900	991
Drainage of houses re-tested		832	627
Total number of tests made		2208	2326
Number of sanitary defects repaired		2077	1911
Houses where sanitary defects were repaired		563	671

DRAINS—

Drains laid, re-laid, and disconnected	329	260
Drains repaired and cleaned out	251	361
Unsuitable gully traps replaced by properly trapped gullies, and new gullies fixed	267	279

W.C.'s—

New w.c.'s fixed in lieu of privies and defective w.c.'s	168	82
Waterclosets repaired	115	145
Fittings and water provided for w.c.'s	41	20
W.C. soil-pipes repaired and ventilated	106	119

REFUSE RECEPTACLES—

Ashpits abolished	143	13
Ashtubs provided	65	24
Ashpits re-built on approved system	78	37
Manure receptacles provided	3	2
Cesspools abolished	3	1
New cesspools built	3	2
Pail closets substituted for privies	8	3

WASTE PIPES—

Bath, lavatory, slopstone, and rainwater waste pipes disconnected over gullies	179	199
New slop stone waste pipes fixed	87	85
New rainwater pipes fixed	7	26
Rainwater pipes and roof gutters repaired	12	33
Slop-hopper waste pipes treated as soil pipes	7	9

MISCELLANEOUS—

Houses cleansed and limewashed	10	6
Walls of houses cemented	10	3
Floors re-laid with flags or in cement	38	19
Back yards repaired	52	83
Back passages cleansed	22	25
Accumulations removed	35	41
Old wells filled in and F.W.W. water provided	3	2
Premises disused as sleeping apartments	1	13
Animals removed from improper situations	25	7
Roofs repaired	—	2
Chimneys raised to abate smoke nuisance	—	3
Rooms ventilated	—	7
Premises other than dwellings closed	3	—

UNSOUND FOOD.

Destroyed under Magistrates' Orders—

Meat	678lbs.	Fruit	70½lbs.
Onions	18½lbs.	Herrings	500
Shrimps	40 quarts.	Codfish, whiting, and gurnetts	36lbs

FARM PREMISES.

Total number of registered cow-keepers and dairymen	106
Total number of registered milk-shops	23
Limewashed and cleansed	106

Inspected regularly.

SLAUGHTER-HOUSES.

Total number of private slaughter-houses	25
Total number of private slaughter-houses registered	1
Application for registration during the year (not granted)	1
Limewashed and cleansed	25

Inspected regularly.

INFECTIOUS DISEASES.

Inquiries made into cases of infectious disaase	325
Houses disinfected after cases of infectious disease	349
Houses disinfected after fatal cases of consumption	6
Isolation notices served upon householders	302
Isolation notices served upon school managers	306

Articles removed from 165 houses to Sanatorium for disinfection :—

Sheets, quilts, blankets, and such	753	Carpets	174
Articles of clothing	1477	Rugs and mats	104
Pillows and bolsters	594	Curtains	91
Books	67	Cushions	90
Beds	209	Tablecloths	43
Mattrasses	190	Miscellaneous articles	132

Total number of articles disinfected 3,924
and also 963 articles from the Sanatoria, a total of 4,887.

COMMON LODGING HOUSES.

Total number on register	3
Limewashed and cleansed	3

Inspected regularly.

CONTAGIOUS DISEASES AMONGST ANIMALS.

I am pleased to report that we have been able to pass through another year without a genuine case of contagious disease amongst animals being notified to us. Notwithstanding our freedom in this respect, the Board of Agriculture still continues to include Blackpool on the Schedule of Infected Areas under the Swine Fever Order of 1894, and this forces us to place somewhat complicated restrictions upon the movement of swine into and from the Borough, to the annoyance of the local butchers and farmers.

Sixty licenses for the movement of swine have been granted under the Order during the year, together with two licenses for the public sale of swine. One of the latter licenses, however, was subsequently withdrawn with the consent of the licensee.

SALE OF FOOD AND DRUGS ACTS.

Forty samples were taken for analysis according to the provisions of the above Acts, viz. :—

Milk	16	Whiskey	3	Vinegar	3
Butter	5	Coffee	3	Lard	2
Pepper	2	Bread	2	Icecream	2
Cheese	1	Gin	1		—
					40

The above samples were forwarded to Professor Brown, D.Sc., and Dr. Williams, the Borough Analysts, for examination.

Only two samples were returned as fraudulent; one of coffee being adulterated with 70 per cent. of chicory, and one of milk being adulterated with nine per cent of water.

GENERAL REMARKS.

The 671 houses made sanitary during the year were distributed over the six wards of the Borough in the following proportion :—

	1893.	1894.
Claremont Ward	72	74
Talbot Ward	170	116
Bank Hey Ward	22	25
Brunswick Ward	59	98
Foxhall Ward	159	287
Waterloo Ward	81	71
	563	671

An examination of the above figures will show that Foxhall Ward has received more than its due share of attention. The explanation lies in the fact in the spring of the year the Medical Officer of Health ordered a thorough overhauling of the houses in Revoe, and this was done.

In my earlier reports of three or four years back, I followed the custom of detailing the works carried out in the various streets of the town; but the number of houses annually made sanitary has increased so largely with the rapid growth of the district that the perusal of such a list at the present time would be exceedingly tedious, especially in view of the fact that, thanks to the labour of past years, it is but rarely that we come across any uncommonly serious nuisance.

The tabulated summary at the head of this report will bear out this statement, and will show that our efforts are now chiefly directed to the reparation of defective drains, ashpits, waterclosets, and wastepipes.

It is a matter for congratulation that this is so, for it indicates that we have practically reached the high standard of sanitation which you, Gentlemen, have always aimed at, and therefore 1894 may be looked upon as a red-letter year in the sanitary history of Blackpool.

The number of tests made at new houses during the year amounts to the large total of 621. In 423 houses the tests were satisfactory, and unsatisfactory in the remaining 198, *i.e.*, about one-third of the houses were found unsatisfactory. In 1893 two-fifths of the new houses tested were found unsatisfactory. The credit for the improved state of things belongs to the Building Inspectors. However, the fact that nearly one-third of the new houses tested were found unsatisfactory is a serious matter, the fault of which lies at the door of the speculative builders who infest the town, Thirteen Magistrates' Orders were obtained under The Housing of the Working Classes Act, for the closure of houses which, in the opinion of the Medical Officer of Health, were unfit for habitation. In the case of ten houses in Middle Street, the owner neglected to comply with the Court's orders, with the result that he was fined 2s. a day for each house for the 34 days which had elapsed since the orders were issued. A conviction of £2 and costs had previously been obtained against the same property owner for failing to abate nuisance at these houses.

In one case, a condemned house was subsequently re-opened after the repairs had been effected thereat necessary to put the house in a sanitary and habitable condition.

Two persons were proceeded against under the Food and Drugs Acts, for selling articles not of the nature, quality, and substance demanded by the purchaser.

In one case a sample of coffee was found to be adulterated with 70 % of chicory, and the vendor fined 5s. and costs. In another case a sample of milk contained upwards of 9 % of water, here the the vendor was fined 10s. and costs.

Three convictions, of £2 and costs in each case. were obtained against persons using premises for sleeping apartments which were not originally intended for that purpose. Two of the premises were lock-up shops and one was a stable.

Three convictions were obtained against persons exposing unsound fish for sale. Two of the offenders were fined 10s. and costs and one 20s. and costs.

An action was brought against a local butcher for exposing for sale meat unfit for human food. The magistrates held that the exposure for sale was not proved and dismissed the case.

Following the instructions of the Medical Officer of Health, a smart watch was kept during the busy summer season upon the itinerant vendors of fruit, oysters, shrimps, &c., who hawk their wares on the sands and through the streets of the town. Their baskets were inspected daily, sometimes oftener, by Assistant-Inspector Sanderson and myself.

I cannot close my report without paying a compliment to the increased efficiency of the staff of drain-testers employed by you. The staff now numbers five men, divided into two gangs, who devote their energies to the North and South Districts of the town respectively.

I wish to renew my thanks to the owners and agents of property who have complied with our requirements during the past year, and to assure them that should any unforeseen contingencies occur in the carrying out of work at their respective properties I shall only be too pleased to confer with them and help to smooth over difficulties as far as lies in my power.

I am, Gentlemen,

Your Obedient Servant,

FRANCIS MACDONALD,

Inspector of Nuisances.

Public Health Offices,
12th February, 1895.

B.—CONDITION OF DWELLINGS.

The preceding able report of the Inspector of Nuisances calls for a few words of comment from me. The four drain-testers' time is taken up with testing the drains of new houses, of houses where infectious disease has occurred, of houses which in my opinion require to be tested, and of houses the owners or occupiers of which request a report to be forwarded them. I am willing to furnish a report of the sanitary condition of any house on receipt of a request from any intending purchaser or occupier; and should strongly counsel that everyone before taking a house should demand a report from the Sanitary Department. The drain-testers also carry out the disinfection of houses where it is required.

The tests of new houses still show a number of defects, but the contractor is generally present when it is applied, and he makes the leaky joints and connections 'good' at once. But with regard to this matter I must reiterate my statement that I do not consider a drain satisfactory the joints of which are made with clay-puddle. The smoke test is good and sufficient for all pipes above the ground, but not for those below. As in the case of boilers a drain should be tested to the maximum which will be required from it. Now, a drain is not devised to carry smoke or air but water, and it should be tested with water by blocking the disconnecting trap, and seeing if it is water-tight when filled with water to the top of the gully which is placed at the lowest level. This is the maximum that will be required of any drain except in very exceptional circumstances. Unless a drain is laid on a concrete bed, and the joints made carefully with good cement, it will not answer this test.

The paving of yards and passages with non-absorbent materials has received greater attention this year. Soft bricks and small boulder stones have been taken up and replaced by flags, cement, concrete, &c.

The bye-law with regard to the cementing of the site of a house is not enforced, and in many cases the flooring of the ground floor is made of wooden boards. If the yards are well flagged, and a drain becomes leaky, not only is the impure ground air, but also the foul gases from the drain, drawn into the house. Such a procedure only invites disastrous consequences.

Further, the bye-law with respect to the provision of two untrapped openings to a drain is not enforced in the case of houses without an internal w.c. Consequently these drains cannot be said to be satisfactorily ventilated.

A great saving of time, trouble, and annoyance to the owners of property would result, if a sub-department were empowered to carry out sanitary repairs, if the owner signed a satisfactory agreement.

Last year I put in force a section of the Blackpool Improvement Act, 1879, which forbids using as a dwelling any building not passed as a dwelling-house on the plan submitted to the Corporation. For this purpose I visited these premises in the night-time, and secured three convictions.

C.—Water Supply.

During the year the Fylde Waterworks Company were prevailed upon to carry a main down Hawes Side Lane, through a district where there was a great scarcity of water, and that of a dangerous quality. Several large farms at Warbrick still are without a proper supply of drinking water, but proceedings are now being taken to enforce a supply from the public service.

The complaints which have been received of the muddy condition of the Fylde water are not so numerous as formerly, but at times there is a quantity of suspended matter, usually peat and iron compounds from the mains. This could be obviated by a proper means of flushing the mains.

D.—Removal of Household Refuse.

I have again to compliment Mr. Green on the manner he has performed his duties as superintendent of this sub-department.

From the fish shops and shops in the centre of the town refuse is removed daily, bi-weekly from the large lodging-houses and hotels, and weekly from all other places, except in the few cases where there are ashpits. There would be a great saving in the labour of collection, and in the rapidity of consumption of the refuse as well as lessened annoyance from smell, if the ash receptacles were placed in properly constructed sheds according to the plan prepared and published with the sanction of the Sanitary Committee. These structures consist of a flag or cement floor not less than three inches above the level of the adjoining ground, with brick walls cemented inside and a slated roof, having a door provided with a van lock and key, opening on the back street and another smaller door opening into the yard of the house. The advantages of this system are:—

(i) The refuse is kept dry and does not so readily decompose.

(ii) Children and animals have not access thereto.

(iii) The refuse is not blown about by the wind.

(iv) The refuse can be removed in the early morning without entering the yard, either by disturbing the inhabitants or scaling the wall. The cost of such a structure is small, and it is durable—a plan of which is always on view at the Health Office.

SUMMARY OF WORK DONE.

	1893		1894		Increase or Decrease	
Ashtubs emptied	290,151	...	324,952	...	+	34,801
Ashpits „	5,550	...	5,591	...	+	41
Ordinary Ashpits emptied... ...	3,805	...	2,601	...	—	1,204
Ashpits according to approved plan emptied	1,745	...	2,990	...	+	1,245
Cesspools............................	200	...	246	...	+	46
Pail Closets (emptied weekly)...	2,080	...	2,496	...	+	416
Privies (in rural portions of Borough)...........................	1,321	...	1,372	...	+	51
Refuse Tubs (emptied daily from markets, shops, &c.) ...	22,483	...	22,617	...	+	134

The sign + means increase, and — decrease in the above and following tables.

The number of ashtubs, privies, &c., in the Borough on December 31st, 1894, was :—

	1893		1894		Increase or Decrease
Ashtubs	5,353	...	5,816	...	+ 463
Ashpits	498	...	448	...	— 50
Ashpits according to approved plan	78	...	128	...	+ 50
Privies and cesspools	210	...	190	...	— 20
Pail Closets in rural parts of the Borough	40	...	50	...	+ 10

Privies are rapidly being abolished, but in parts of the Borough, where as yet sewers have not been laid, cesspools are being constructed, and in new houses the cesspools have been improperly, in contravention of the Bye-laws, placed too near the dwellings in some instances, whilst sometimes the builder has been allowed to have a water-closet in connection with this arrangement. This has proved a great source of expense to the Authority in emptying the same, and has been fruitful of complaints because they rapidly become full to overflowing.

The refuse carted was disposed of as follows :—

	1893.		1894.		Increase or Decrease.
Loads of refuse to destructor	12,839	...	14,751	...	+ 1,912
Do. do. destructor tip	393	...	284	...	— 109
Do. to the oyster shell heap	127	...	106	...	— 21
Do. on land in various parts of the Borough	981	...	1,149	...	+ 168
Total loads of refuse carted	14,340	...	16,290		+ 1,950
Total loads of coke carted to cremators	834	...	977	...	+ 143
Total loads of refuse and coke	15,174	...	17,267	...	+ 2,093

More loads of refuse were tipped away in 1894 than in 1893, because there were more loads of dirty water from cesspools, which was emptied on to land for agricultural purposes.

For the financial year ending March 25th, 1895, the cost of emptying ashpits was £2,509, *i.e.*, per inhabited house 7s. 11·99d.

as compared with 7s. 11·07d. in 1893. The number of loads of refuse and coke carted during the financial year was 16,889, that is 2s. 11·6d. per load, as compared with 3s. 2·8d. in 1893.

The cost of the refuse destructor during the financial year, including interest and sinking fund, was £1618, and the loads of refuse burnt were 14,553, or a cost of 2s. 2·6d. per load consumed, as compared with 2s. 1·6d. in 1893.

E.—Farm Premises.

I made a special survey of the farms and cowsheds in the Borough, and as a consequence of my report the majority of them were visited by the Sanitary Committee. The Regulations with regard to Cowsheds, Dairies, and Milkshops were old and had fallen into desuetude. A fresh set were drafted and are now in force. By these the cubic space per cow has been reduced from 800 to 600 cubic feet, and this regulation will now be insisted upon, as well as adequate means of ventilation, which is of far more consequence.

I found that there were 93 cowkeepers in the Borough, and 103 cowsheds. These sheds were constructed to contain 768 cows but owing to some being disused and others not filled, only 669 cows occupied these sheds. There were also 44 cows housed in stables with horses, or in outbuildings, which I cannot dignify by the term cowshed. The number of cows kept in the Borough at the time of the inspection were 713. The cubic space per cow in one cowshed was 196, in 6 cowsheds was from 200—250 cubic feet, in 15 cowsheds 250—300 cubic feet, in 41 sheds 300 to 400 cubic feet, in 26 sheds from 400 to 500 cubic feet, in 7 sheds from 500 to 600 cubic feet, in 3 sheds from 600 to 700 cubic feet, in 3 sheds from 700 to 800 cubic feet, and in one shed it was 874 cubic feet.

There were no windows in 63 of the cowsheds, and in 49 there were no means of ventilation provided beyond the doors. The buildings varied from substantial brick buildings to the flimsiest wooden lean-to buildings. These latter were generally in a disgustingly dirty state. The importance of boiling all milk before use would be evident to anyone acquainted with the conditions under which the average cow is housed and cared for. To suggest that the udders of the cows should be frequently cleansed is rank heresy, and causes the cowkeeper to look upon anyone who suggests anything of the sort as not only impracticable, but a fit occupant for the nearest lunatic asylum. The composition of the dark sediment which collects at the bottom of the milk jugs is not difficult to discover, for it mainly consists of dried cow dung which falls from the udder during the milking process. I hope to be able to chronicle a great improvement in the milk supply of the Borough in the next report.

F.—Slaughter-houses.

The public slaughter-house is now rapidly approaching completion, and during this year 1895, nearly all the private and objectionable slaughter-houses will be closed.

G.—Housing of the Poor.

Under Part II. of the Housing of the Working Classes Act, 1890, I made representations that 11 houses were unfit for habitation. One was closed without any proceedings being taken, one pair of back-to-back houses was converted into one and put into good repair, one was repaired to some extent, and the seven others are still in hand. There is a special difficulty in dealing with this class of houses in Blackpool,in that there is not adequate provision of houses at small rents, and therefore any severe action would make matters worse by producing overcrowding, or possibly increasing already existent overcrowding. The Court allowed a house after certain alterations to be occupied which had been closed by it.

H.—Sewers and Sewage Disposal.

The pumping station for the sewer to Little Layton is not yet complete. By the kindness of the Borough Surveyor I am enabled to give the following details of sewerage work done during last year by his department:—

NEW SEWERS LAID.	Yards.
15-inch sewers	1160
12-inch sewers	1671
9 inch sewers	2822
	5660

Old sewers taken up and re-laid or replaced with larger pipes:—

	Yards.
15-inch sewers	583
12-inch sewers	1584
9-inch sewers	890
	3057

During the year the number of plans passed were 339, and the certificates of habitation given numbered 180, and referred to 488 dwelling-houses.

Again I have to urge the necessity of providing adequate means for flushing the sewers, and for this purpose recommend automatic flushing tanks at the dead ends of the sewers fed with sea-water.

I am sorry that I am unable to report upon the system of ventilating the sewer by means of a large fan, as the ventilating connecting shaft has not yet been laid. It is a very urgent matter—at present any offending manhole is closed up when a strong complaint is made, and soon there will be no ventilation at all. I understand that the sewer out-fall is being attended to, but, at the same time, I am of opinion that the outlet for Spen Dyke, whilst the sewer is tide-locked, should be carried some distance seawards, for not only is it unsightly, and gives rise to misconception, but it also is not free from offensive smells at times.

I.—Food Supply.

At the latter end of July certain newspapers published statements to the effect that visitors from Chorley had severe attacks of diarrhœa after visiting Blackpool, and said it was caused by ice-cream made and consumed here. At that time the Borough of Blackpool was remarkably free from the disease considering the time of the year, as I found not only from the death-returns, but also as the result of replies to circulars I sent to the medical men practising in the town. I visited Chorley, and found most of the excursionists left there on July 19th and returned on July 23rd, that the illness from which they suffered was characterised by pyrexia for 2 or 3 days, aching in the limbs, and vomiting and purging setting in almost simultaneously; that a child aged 5 years died in Chorley on July 21st from summer diarrhœa, who had not been to Blackpool; that cases of diarrhœa were not unknown in Chorley amongst people who had not been away, and I discovered a severe case in a man who had visited Blackpool and who stoutly maintained that the food he consumed in Blackpool was brought away from home by him, except some ham and mutton, the former of which was fried, and the latter roasted before use. He was a total abstainer, did not drink water, only took milk in his tea. Had had neither fish, oysters, shrimps, nor ice cream. This man's child, 2½ years old, was also taken severely ill, and the wife only slightly. Some ascribed their illness to fresh salmon, some to tinned salmon, and some to meat pies. I found that the severer cases occurred amongst the younger members of the family, and these mostly confessed to eating largely of ice cream (going for 'odd ones' as one expressed it), pennyworth's of shrimps in bags, strawberries, oysters, and the like. I consider that a large quantity of ice cream consumed greedily, and when perfectly fresh, is liable to cause severe gastro-enteritis, which is called diarrhœa. From July 19th to the 23rd the weather became suddenly warmer, and at that time the earth thermometer at 4ft. read 57·8, having been above 56° since July 1st. Food inspection has been carried out here to the utmost extent of our power, and I consider that the officials have not erred on the side of leniency. The Sanitary Officials cannot pretend to be answerable for the soundness of every separate article of food, nor for the results of over-eating, any more than they can for over-drinking. A short time later an authority at Darwen discovered that enteric fever had been communicated to Darwen people by ice cream made in Blackpool, and it was suggested that the ice was obtained from foul pits in the neighbourhood. The Medical Officer of Health at Darwen informed me when I visited the town that the few cases of enteric fever which had occurred there had not visited Blackpool. There was not at that period, and had not been previously for some three months, a case of enteric fever in Blackpool. I pointed out at the time that the ice used in Blackpool came from one source, and that Norway, and that it was not consumed, but only used to make a freezing mixture. Then refuge was taken in a crack, and it was said that ice might get in through cracks in the vessel containing the cream, as if the taste of a slight admixture of salt and water would not have been detected at once.

It was suggested that possibly through the corrosion of the metallic vessels through dirt that there was some metallic poisoning. Samples were taken and carefully analysed with a negative result, as I fully expected. But a greater danger exists, a danger so great that urgent legislation is demanded on this subject. At the present time there is no power to have makers of ice-cream registered, nor to inspect their premises, unless in search of a nuisance. However, if I get sufficient help this year it is my intention to discover where each vendor of this commodity manufactures it, and how, and where, he keeps it afterwards.

The method adopted in the manufacture of ice-cream, is to place a quantity of milk, eggs beaten up, and a small quantity of cornflour in a clean brass or iron pan. The pan is placed either on an open fire or a gas stove, and its contents gradually raised to nearly the boiling point, and kept at that temperature until the requisite consistency is attained. This usually takes half-an-hour or even longer. As a rule colouring materials are not used. The material is set to cool in an open earthenware jar until next morning; the boiling generally being conducted in the evening.

Often enough the jar is placed in improper situations to cool, and here is where the danger occurs, for the previously sterilised cream may become infected with obnoxious micro-organisms, and will afford a favourable nidus for their development. In one place where an extensive business was done, the jar containing the cream was set to cool on a dirty brick floor within three feet of a small foul brick cesspool in connection with a syphon trap and through that to the sewer. In many cases the makers of ice cream live or lodge in cottage houses, and the cooling takes place in some cases in the scullery or living room of the house. Next morning the cream is placed in a block tin receiver, and is frozen by surrounding the tin with a mixture of ice and salt.

If the whole stock is not sold during the first day, it is left during the night in the tin surrounded with the remainder of the freexing mixture. But by morning the ice cream may have melted, and the growth of organism which had been stopped by freezing will now proceed apace. This may continue until either the whole stock is sold or it turns sour. It is only fair to state, however, that neither the Inspectors nor myself ever found any ice cream which presented an acid re-action to delicate litmus paper.

J.—Shop Hours Act.

Advertisements were issued that this Act would be enforced by the Sanitary Department, placards to be exhibited in the shops were printed, and a number of the shops visited and inquiries made as to the employment of young persons.

IV.—METEOROLOGY.

The observations have been carefully taken by Mr. T. Sanderson, Sanitary Inspector. During the season telegraphic messages of the state of the weather were sent each forenoon to the " Sheffield Daily Telegraph."

The equipment of the department consists of—

(i) A Standard Fortin barometer kept in the Health Office.

(ii) A Stevenson-screen containing wet and dry bulb and maximum and minimum thermometers.

(iii) An earth thermometer at a depth of four feet since May 27th.

(iv) A rain gauge.

(v) A Campbell-Stokes Sunshine Recorder on the North Pier, and a wind vane, and an anemometer, a new instrument erected June 12th.

The Stevenson-screen with the thermometers and rain gauge are kept at the Infectious Diseases Hospital. The tables at the end of the report give the result of the observations for the year. I append here a short summary of the weather for each month of the year. The observations are taken daily at 9 a.m.

January.—Intense frost prevailed during the earlier part of the month. The pressure was low throughout the month. Rainfall was below and bright sunshine above the average. The temperature was higher by 1° degree than those of inland stations in the neighbourhood. Towards the end of the month the weather was very mild and humid, and in consequence the mean temperature was 0·6 above the average.

February was an unsettled month, with frequent falls of rain. The pressure and temperature were slightly above the average. Sunshine was less than usual. Rainfall was above the average. The rainfall less and bright sunshine greater than at the meteorological stations in the neighbourhood.

March.—Temperature and bright sunshine were above average. Rainfall and barometer were below. Temperature was greater and rainfall less than at neighbouring stations.

April.—Height of barometer was less than the average. Temperature was much above the average. Rainfall scanty; bright sunshine less than average.

May.—Temperature and pressure below the average. Bright sunshine less than usual. Rainfall above average. Blackpool about 2° warmer, with less rainfall, than at neighbouring observatories.

June.—Rainfall was above, and pressure, temperature, and bright sunshine were below the average. The mean temperature was higher, and the rainfall less than at Stonyhurst and Manchester. Earth thermometer rose from 50·6° to 55·1° F.

July.—Weather was variable. Thunderstorms at beginning of month. Barometric pressure higher than usual, but variable. Temperature above average, and distinctly above that of neighbouring districts. Rainfall was below the average, whilst in England generally it was above. Sunshine was less than usual. Rainfall was decidedly less than for inland stations. There was one sunless day. Earth thermometer rose from 56° to 58° on the 17th, then dropped to 57·7 deg. and gradually rose to 57·9 deg. at end of month. Air travelled 12,620 miles in the month.

August was a colder and more rainy month than usual. Pressure, temperature, and sunshine were below and rainfall above the average. The earth thermometer rose from 57·9 to 58·0, and from August 10th it fell gradually to 57·5 on the 27th, and rose to 57·7 on 31st. Air travelled 15,751 miles in the month Sunshine was greater than at neighbouring stations. Only three sunless days.

September.—Pressure and sunshine were above the average. Temperature and rainfall below average. This was the driest month of the year. The temperature was 1·4° higher and the rainfall lower than at neighbouring stations. The earth thermometer was steady to the 6th, and fell gradually to 55·0° at end of month. Air travelled 7,049 miles in the month.

October.—A severe gale of wind and rain on the 24th. Pressure slightly above average, but barometer was variable, temperature, rain and sunshine below. Earth thermometer fell gradually from 55° to 50°. Air travelled 8,479 miles in the month. Temperature and bright sunshine were above, and rainfall less than neighbouring stations.

November.—Severe gale with heavy showers from 6 p.m. on 8th to 6 am. on 9th which damaged the anemometer, and so interfered with the reading for three days. Temperature four degrees above the average. Barometer, sunshine and rainfall slightly below the average. The earth thermometer rose from 50·0 to 50·3 on the 7th, then stationary, and fell from the 11th to 47.9° at the end of the month. Air travelled 10,935 miles during the 26 days of complete observation. Temperature over 1° above that of neighbouring stations.

December.—A very severe gale from 2 a.m to 4 p.m on the 22nd, resulting in several shipwrecks on the coast. Anemometer at 9 a.m on 22nd read 1,154 miles, and on 23rd 1,099 miles. A severe gale from Friday the 28th until Sunday the 30th, miles travelled by anemometer on 28th was 1515, on 29th 1337, and 30th 918 miles. Pressure, temperature, and sunshine were higher than the average. Rainfall less. Three nights of frost. Temperature nearly 2 degrees higher, rainfall about three inches less, than inland neighbouring stations. Earth thermometer fell from 47·8° to 45·4° on the 11th, stationary for three days, and then rose to 46·0° on the 17th, stationary for four days, and then fell to 45·4° on the 24th, rising again to 45·7° on the 27th, and finally fell to 45·4° on the 31st. Air travelled 18,449 miles during the month.

Extremes.—The highest barometric reading was 30·677-in. on Dec. 27th, and the lowest 28·748-in. on Oct. 25th. The extreme range for the year was 1·929-in.

The highest temperature in the shade was 81·9° on July 1st, and the lowest 14° on January 6th.

The wettest day of the year was August 2nd, when 1·11-in. fell. There were 10 days when the air was completely saturated with moisture. It was driest on June 30th, the relative humidity being 52.

The temperature in Stevenson's screen fell below freezing point on 9 nights in January, 7 each in February and December, 3 in March, 2 each in May, October, and November, and 1 each in April and September.

Appendix, Tables, &c.

TABLE A (Local Government Board Return).

TABLE OF DEATHS during the year 1894 in the Borough of BLACKPOOL, classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES.	Mortality from all causes at subjoined ages.								Mortality from subjoined causes, distinguishing Deaths of Children under 5 years of age.																					
													FEVERS.																	
a	At all Ages. b	Under 1 year. c	1 and under 5. d	5 and under 15. e	15 and under 25 f	25 and under 65 g	65 and upwards h	i	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4	Typhus. 5	Enteric or Typhoid 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Whooping Cough. 13	Diarrhœa and Dysentery. 14	Rheumatic Fever. 15	Ague. 16	Phthisis. 17	Bronchitis, Pneumonia, & Pleurisy 18	Heart Disease. 19	Injuries. 20	All other Diseases. 21	TOTAL. 22
Claremont Ward	48	7	3	2	1	24	11	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	...	2	3	....	4	10
								5 upwards	....	1	....	....	....	....	...	....	....	....	2	....	....	....	....	....	3	4	6	1	21	38
Talbot Ward	130	39	9	4	4	54	20	Under 5	1	....	....	....	....	....	....	....	....	....	....	1	2	3	....	....	....	9	2	1	29	48
								5 upwards	1	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....	4	12	11	1	50	82
Bank Hey Ward	31	5	5	1	3	14	3	Under 5	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	3	....	....	5	10
								5 upwards	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	....	1	3	4	3	7	21
Brunswick Ward	80	20	8	4	4	32	12	Under 5	....	1	....	....	....	....	....	....	....	....	1	2	....	..	....	....	....	4	....	1	19	28
								5 upwards	....	....	....	....	....	....	....	...	....	....	....	....	....	....	....	..	8	5	8	1	30	52
Foxhall Ward	120	32	9	7	4	50	18	Under 5	....	....	2	....	....	....	....	....	....	....	....	3	....	3	....	..	....	10	....	....	23	41
								5 upwards	....	1	2	....	....	....	....	....	....	....	....	....	....	....	2	....	7	10	8	3	46	79
Waterloo Ward	63	13	10	8	..	20	12	Under 5	...	....	..	2	....	....	....	....	....	....	....	....	1	3	....	....	..	2	....	....	15	23
								5 upwards	....	....	2	1	....	3	....	....	....	....	....	....	....	1	1	....	7	2	3	....	20	40
Kirkham Workhouse (not in Borough)	9	..	..	..	..	2	7	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
								5 upwards	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	3	1	....	....	4	9
TOTALS	481	116	44	26	16	196	83	Under 5	1	2	2	2	....	....	....	....	....	....	1	6	3	11	....	....	....	30	5	2	95	160
								5 upwards	1	2	4	1	....	8	....	....	1	....	2	....	....	2	3	....	33	37	40	9	178	321

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto, in Kirkham Workhouse.	9	....	....	....	. ..	2	7	Under 5	....	....	....	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
								5 upwards	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	3	1	....	....	4	9
Deaths occurring within the district among persons not belonging thereto	120	20	6	7	5	67	15	Under 5	....	....	....	....	....	....	....	....	....	....	....	1	1	3	....	....	....	6	....	....	15	26
								5 upwards	1	1	2	....	....	2	....	....	....	....	....	....	....	....	....	....	7	10	16	3	52	94

TABLE B. (Local Government Board Return).

TABLE OF POPULATION, BIRTHS, and of NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1894, in the BOROUGH OF BLACKPOOL, classified according to DISEASES, AGES, and LOCALITIES.

NAMES OF LOCALITIES.	Population at all Ages.				New Cases of Sickness in each Locality coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.												
									FEVERS.													FEVERS.								
a	Census 1891. b	Estimated to middle of 1894. c	Registered Births. d	Age under 5 or over 5. e	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4	Typhus. 5	Enteric or Typhoid. 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Rötheln. 13	Smallpox. 1	Scarlatina. 2	Diphtheria. 3	Membranous Croup. 4	Typhus. 5	Enteric or Typhoid. 6	Continued. 7	Relapsing. 8	Puerperal. 9	Cholera. 10	Erysipelas. 11	Measles. 12	Rötheln. 13
Claremont Ward	3,464	4,124	95	Under 5	....	1	....	....	....	....	....	....	....	....	....	18	....	....	....	....	....	....	....	....	....	....	....	....	4	....
				5 upwards	....	5	....	....	....	1	....	....	....	....	....	19	....	....	4	....	....	....	....	....	....	....	....	....	8	....
Talbot Ward	6,390	7 777	251	Under 5	1	3	....	....	....	1	....	....	....	....	....	14	....	1	1	....	....	....	....	....	....	....	....	....	3	....
				5 upwards	12	12	1	....	....	14	....	....	1	....	....	22	....	12	9	....	....	....	12	....	....	....	....	....	3	....
Bank Hey Ward	2,036	2 351	31	Under 5	....	2	....	....	....	....	....	....	....	....	....	6	....	....	2	....	....	....	....	....	....	....	....	....	....	....
				5 upwards	....	6	....	....	....	4	....	....	....	....	....	10	....	....	6	....	....	....	4	....	....	....	....	....	1	....
Brunswick Ward	4,095	5,226	121	Under 5	....	7	....	....	....	1	....	....	....	....	....	27	....	....	6	....	....	....	....	....	....	....	....	....	3	....
				5 upwards	....	9	....	....	....	22	....	....	....	....	....	50	....	....	8	....	....	....	13	....	....	....	....	....	7	....
Foxhall Ward	4,905	7,104	152	Under 5	....	5	3	....	....	....	....	....	....	....	....	49	....	....	4	2	....	....	....	....	....	....	....	....	5	....
				5 upwards	6	15	3	....	....	7	....	....	....	....	....	67	1	6	13	2	....	....	4	....	....	....	....	....	9	....
Waterloo Ward	2,956	3,755	69	Under 5	....	2	1	1	....	....	....	....	....	....	....	13	1	....	....	....	....	....	....	....	....	....	....	....	....	....
				5 upwards	1	9	3	1	....	10	....	....	....	....	....	25	6	1	5	....	....	....	4	....	....	....	....	....	2	....
Kirkham Workhouse	....	....	7	Under 5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
				5 upwards	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTALS	23,846	30,337	726	Under 5	1	20	4	1	....	2	....	....	....	....	....	127	1	1	13	2	....	....	....	....	....	....	....	....	15	....
				5 upwards	19	56	7	1	....	59	....	....	1	....	....	193	7	19	45	2	....	....	37	....	....	....	....	....	30	....

TABLE C.

POPULATION AND DEATH RATES (RESIDENTS) AT VARIOUS AGES.

	Blackpool, 1894.									Engl'nd and Wales 1881 90	Engl'nd and Wales 1881-90
	Per cent. of population living at various ages		Number estimated living in 1894.		Total Deaths.		Death Rate.		Death Rates of persons at different ages.	Death Rates of males living at different ages.	Death Rates of females living at different ages.
	Males	Females	Males	Females	Males	Females	Males	Females			
Under 5 years...	4·62	5·33	1401	1617	82	52	58·50	32·16	44·4	61·59	51·95
5 and under 25..	17·30	22·18	5249	6729	13	17	2·47	2·52	2·50	4·54	4·56
25 and under 65	19·10	27·50	5795	8343	57	72	9·84	8·63	9·12	15·19	12·92
65 and under 75	1·29	1·87	391	567	21	19	53·66	33·49	41·75	70·39	60·36
75 years and over	0·34	0·47	103	142	13	15	126·0	105·2	114·29	163·05	148·06

TABLE D.

ANALYSIS OF MORTALITY.

		Annual Rate of Mortality fr.						Percentage of Total Deaths, of Deaths						
	BIRTH RATE.	All Causes.	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of the Lungs.	Heart Disease.	Proportion of Deaths under 1 year to 1,000 Births. (Infant Mortality.)	Of Infants under 1.	Under 5 years.	60 years and over.	From seven principal Zymotics.	From Pulmonary Consumption.	From other Lung Diseases.	From Heart Disease.
Average of 10 years **1881-90**	27·3	18·49	2·0	1·3	3·1	1·5	155·9	22·8	32·3	24·8	11·2	7·2	16·8	7·8
1891.	22·3	20·0	2·0	1·2	5·4	1·6	182	21·5	34·1	27·8	10·2	6·3	27·0	8·1
1892.	24·01	18·25	0·89	1·2	3·81	1·49	158	20·9	29·3	25·4	4·9	6·7	20·9	8·2
1893.	22·47	18·74	2·64	0·98	4·14	1·51	210·3	25·1	33·2	24·6	14·1	5·2	22·1	8·0
1894.	23·9	15·85	1·38	1·08	2·21	1·48	159·7	24·1	33·2	24·5	8·7	6·8	13·9	9·3

TABLE E.

BIRTHS AND DEATHS (RESIDENTS) IN EACH QUARTER OF THE YEAR 1894.

QUARTER ENDING	Births.	Deaths from All Causes.	Seven Principal Zymotic Diseases.	Pulmonary Consumption.	Other Lung Diseases.	Heart Disease.	Total Deaths under 1.	Under 5.	60 years and over.
March 31st.........	175	86	4	8	15	9	18	26	21
June 30th	180	96	6	8	11	10	26	35	20
September 29th...	181	83	13	3	7	4	24	31	20
December 31st ...	190	96	8	7	18	6	28	42	26
Totals	726	361	31	26	51	29	96	134	87

TABLE F.

SHEWING THE SEVERAL DEATH RATES (RESIDENTS) FOR EACH QUARTER IN THE YEAR 1894.

QUARTER ENDING	Death Rate.		Infant Mortality.	Per cent. of Total Deaths of Deaths.			
	From All Causes.	From 7 Zymotics.		From 7 Zymotics.	Of Infants under 1 year.	Of Children under 5 years.	Of Persons 60 years and over.
March 31st......	11·49	0·534	102	4·6	20·9	30·2	24·4
June 30th	12·69	0·79	144	6·2	27·0	36·4	20·8
September 29th	10·97	1·72	132	15·6	28·9	37·3	24·1
December 31st	12·42	1·03	147	8·3	29·1	43·5	27·1

TABLE G.

Deaths.	1887. Quarters.				Totals.	1888. Quarters.				Totals.	1889. Quarters.				Totals.	1890. Quarters.				Totals.	1891. Quarters.				Totals.	1892. Quarters.				Totals.	1893. Quarters.				Totals.	1894. Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
From all causes	72	82	96	77	327	61	75	100	86	322	102	88	124	92	406	110	112	110	119	451	98	158	128	123	507	123	110	131	124	488	116	115	173	128	532	103	124	132	122	481
Under 1 year	13	14	17	17	61	18	19	11	21	69	25	15	38	19	97	27	24	26	30	107	24	23	32	30	109	23	17	27	35	102	29	18	66	21	134	21	29	34	32	116
Under 5 years	27	26	33	21	107	20	28	23	32	103	39	31	49	28	147	43	37	35	41	156	31	50	45	47	173	31	24	41	47	143	42	26	79	30	177	29	41	43	47	160
60 years and over	19	27	26	27	99	17	20	24	23	84	25	16	31	31	103	33	27	35	34	129	36	33	36	35	140	33	38	22	37	130	27	29	35	40	131	26	30	33	29	118
From 7 Zymotics	6	10	30	7	53	6	4	14	10	34	10	8	19	5	42	14	8	18	7	47	7	4	24	17	52	2	1	11	10	24	10	7	49	9	75	6	6	20	10	42
,, PulmonaryConsumption	7	7	2	9	25	1	6	8	8	23	9	8	7	6	30	5	7	7	8	27	5	10	10	7	32	11	5	12	5	33	6	5	9	8	28	9	10	4	10	33
,, Other Lung Diseases	19	19	7	16	61	14	19	12	17	62	22	10	10	22	64	29	29	9	28	95	29	68	11	29	137	29	25	17	31	102	43	32	14	29	118	18	14	12	23	67
,, Heart Disease	3	6	10	4	23	4	9	10	7	30	11	4	14	10	39	8	13	9	7	37	6	13	11	11	41	10	7	17	6	40	6	19	10	8	43	10	13	13	9	45
,, 5 Zymotics	3	6	7	5	21	5	4	10	10	29	6	4	8	5	23	13	6	3	..	22	4	1	6	10	21	..	..	3	6	9	5	3	9	8	25	5	4	10	7	26
,, Diarrhœa	..	..	18	.	18	1	..	4	..	5	1	1	9	..	11	..	2	14	7	23	..	1	16	7	24	1	..	8	1	10	1	1	38	1	41	..	2	10	1	13
,, Whooping Cough	3	4	5	2	14	..	..	..	..	....	3	3	2	..	8	1	..	1	..	2	3	2	2	..	7	1	1	..	3	5	4	3	2	..	9	1	..	..	2	3

TABLE H.

Cases of Infectious Disease Notified during the Years, 1885-1892. (inclusive).

Disease.	1885. Quarters.				Totals.	1886. Quarters.				Totals.	1887. Quarters.				Totals.	1888. Quarters.				Totals.	1889. Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
Smallpox......	..	1	1	..	2	1	..	..	..	1	..	..	..	..	...	..	..	..	..	....	..	..	..	..	....
Measles	2	19	71	38	130	27	152	37	17	233	4	19	13	1	37	6	2	16	64	88	13	26	26	115	180
Scarlet Fever ..	3	1	14	7	25	11	17	52	27	107	17	13	35	28	93	12	14	18	24	68	2	8	12	23	45
Diphtheria	3	..	1	4	8	1	11	13	2	27	1	1	4	3	9	16	3	7	6	32	5	7	7	10	29
Enteric Fever..	2	2	8	10	22	8	2	4	4	18	1	4	10	2	17	4	..	9	43	56	19	7	11	2	39
Rötheln	..	1	1	..	2	1	..	..	..	1	..	3	..	..	3	..	..	..	..	....	4	3	2	4	13
Puerperal	..	..	..	..	....	1	..	..	..	1	..	..	..	..	....	..	2	..	..	2	..	1	1	2	4
					189					388					159					246					310

Disease.	1890. Quarters.				Totals.	1891. Quarters.				Totals.	1892. Quarters.				Totals.	1893. Quarters.				Totals.	1894. Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
Smallpox......	..	..	..	..	....	..	..	..	..	....	..	..	..	..	....	..	4	..	2	6	7	8	5	..	20
Measles	125	28	17	3	173	10	25	73	138	246	11	6	20	11	48	4	25	88	5	122	2	102	205	11	320
Scarlet Fever ..	11	25	25	8	69	4	7	21	25	57	17	17	10	26	70	13	19	53	45	130	12	20	31	12	75
Diphtheria	7	4	4	1	16	4	4	..	1	9	3	2	3	3	11	2	1	6	3	12	5	1	4	1	11
Enteric Fever..	2	3	18	9	32	9	3	7	10	29	6	4	12	14	36	9	3	15	15	42	5	1	11	43	60
Rötheln	1	1	..	..	2	..	..	..	..	....	..	..	1	..	1	..	..	3	..	3	..	6	2	..	8
Puerperal	..	1	2	1	4	..	..	..	..	....	..	1	..	..	1	2	1	..	1	4	1	..	..	..	1
					296					341					167					319					495

TABLE K.

	Population.	Rate per 1,000.				Total Births.	Total Deaths.	Infant Mortality per 1,000 Births
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Cor-rected				
1878...	13,000	38·8	21·0	...	5·0	439	274	166
1879...	15,000	36·6	17·8	...	3·06	401	268	122
1880...	15,000	34·0	22·7	...	5·0	510	341	205
1881...	14,229	30·6	18·6	15·8	1·2	436	265	126
1882...	16,000	30·0	22·9	21·0	2·8	480	367	220
1883...	16,000	30·0	19·5	16·6	1·6	480	312	139
1884...	17,212	29·8	19·0	17·1	2·14	513	328	146
1885...	18,031	27·4	17·2	15·2	1·71	494	311	174
1886...	19,550	25·9	18·9	16·5	2·71	508	370	151
1887...	20,380	25·3	16·0	14·0	2·45	516	327	116
1888...	20,540	24·5	15·6	13·2	1·6	504	322	136
1889...	21,661	26·5	18·7	16·5	1·9	575	406	168
1890...	24,312	23·7	18·5	16·5	1·9	577	451	181
1891. .	25,310	22·3	20·0	18·2	2·03	566	507	181
1892...	26,740	24·0	18·2	15·2	0·89	642	488	158
1893...	28,389	22·4	18·7	14·8	2·68	638	532	192
1894...	30,337	23·9	15·8	11·9	1·38	726	481	159

TABLE L.

SHEWING THE PERCENTAGE OF TOTAL DEATHS, OF DEATHS OF CHILDREN UNDER 5 YEARS OF AGE, AND OF PERSONS OVER 60 YEARS OF AGE.

	Total Deaths.	Under 5 Years of Age.	60 and over.	Per cent. of Total Deaths, of Deaths	
				Under 5 years of Age.	60 and over.
1878	274	103	56	37·8	20·7
1879	268	93	50	34·7	18·6
1880	341	153	59	44·8	17·3
1881	265	80	61	30·1	23·0
1882	367	106	71	28·8	19·3
1883	312	106	76	33·3	24·3
1884	328	101	82	30·7	25·0
1885	311	123	74	39·5	23·7
1886	370	133	89	35·9	24·0
1887	327	107	99	33·0	30·0
1888	322	103	84	32·3	26·0
1889	406	147	93	36·2	22·9
1890	451	156	129	34·5	28·6
1891	507	173	141	34·1	27·8
1892	488	142	130	29·1	26·6
1893	532	177	131	33·2	24·6
1894	481	160	118	33·2	24·5

METEOROLOGICAL OBSERVATIONS.

Lat.—53° 49′. Long.—5° 3′ W.

	1893.	1894.
Mean Temperature..........	50·5	49·05
Total Rainfall (in inches) ...	31·25	

(Max. and Min. Combined.)

		H.	M.
Bright Sunshine ...	1893...	1497	18
	1894...	1310	12

1894.	Pressure of Atmosphere in month corrected for temp. and press.		Temperature of Air in Month.									Mean Humidity. Complete Saturation = 100.	Rainfall.				Bright Sunshine.	Amount of Cloud. 0=clear; 10=overcast 9 a.m.
			Means of				Absolute extremes of											
Month.	Mean.	Range.	9 a.m.	All highest	All lowest	Daily Range.	Maximum	Date	Minimum	Date	Range		Amount (in inches)	No. of Rainy Days.	Maximum fall in one day.	Date.		
January ...	29·758	1·435	39·1	43·4	34·1	9·3	51·0	12th 27th 28th	14·0	6th	37·0	89·1	2·68	21	0·37	31st	39·6	6·5
February ...	29·811	1·137	40·1	46·5	35·4	11·1	57·0	6th 7th	25·0	20th 22nd	32·0	87·6	4·18	21	0·93	10th	54·8	7·6
March	29·904	1·229	45·8	52·3	36·9	15·4	65·5	30th	27·0	17th	38·5	79·7	2·14	11	0·73	12th	171·3	5
April.........	29·834	0·873	50·6	57·4	40·3	17·1	69·3	11th	31·8	23rd	37·5	76·0	1·05	16	0·22	16th	132·38	7·4
May	29·954	0·875	49·9	55·7	42·0	13·7	63·0	18th 24th	30·5	22nd 23rd	13·7	70·8	2·28	16	0·57	13th	180·65	5·7
June	29·990	0·826	56·9	62·7	48·9	13·8	80·9	30th	38·0	7th	42·9	79·0	2·64	18	0·35	4th	161·66	7
July	29·902	1·784	61·8	67·9	53·8	14·1	81·9	1st	45·0	14th	36·9	76·1	2·35	18	0·56	24th	172·8	6·3
August	29.906	0·915	58·2	63·3	53 7	9·6	68·0	5th 8th	47·5	27th	20·5	79·9	4·53	18	1·11	2nd	95·97	7·2
September..	30·196	0·742	54·7	60·8	45·5	15·3	65·0	16th	30·1	28th	34·9	80·1	0·49	3	0·19	23rd	141·03	6
October ...	29·911	1·771	48·6	55·6	41·5	14·1	63·5	12th	24·6	22nd	38·9	85·7	3·85	13	0·73	23rd	81·82	6·9
November ..	29·891	1·593	47·2	51·8	42·3	9·5	60·0	1st	27·0	30th	33·0	88·9	3·47	19	0·93	13th	42·71	8
December...	29·963	1·543	42 0	47·0	37·4	9·6	53·8	13th	27·9	6th	25·9	90·4	2·86	21	0·51	18th	35·49	7·7

Direction of Wind at Blackpool during 1894.

1894.	N.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	No. of days in each month.
January	...	...	2	2	4	...	3	4	3	1	5	...	6	...	1	...	31
February	...	...	...	...	1	1	1	5	3	...	6	4	6	...	1	...	28
March	1	...	...	1	3	3	4	1	3	...	3	...	11	...	1	...	31
April............	...	...	...	...	10	4	3	3	2	2	3	...	1	...	1	1	30
May	1	...	...	...	6	2	...	...	...	2	1	1	4	...	8	6	31
June	...	...	1	...	2	3	2	...	...	4	1	2	6	1	3	5	30
July	1	...	...	1	1	2	2	1	2	2	4	1	10	2	2	...	31
August	...	1	...	1	...	3	...	...	1	3	...	4	4	5	6	3	31
September ...	4	4	1	7	4	3	1	1	...	...	...	...	...	2	2	1	30
October	1	3	...	6	1	3	1	7	1	1	...	2	2	...	1	2	31
November	...	...	2	3	...	...	5	5	3	1	6	1	3	1	...	...	30
December......	...	...	1	1	...	1	7	...	...	3	1	3	4	1	5	4	31
Totals......	8	8	7	22	32	25	29	27	18	19	30	18	57	12	31	22	365